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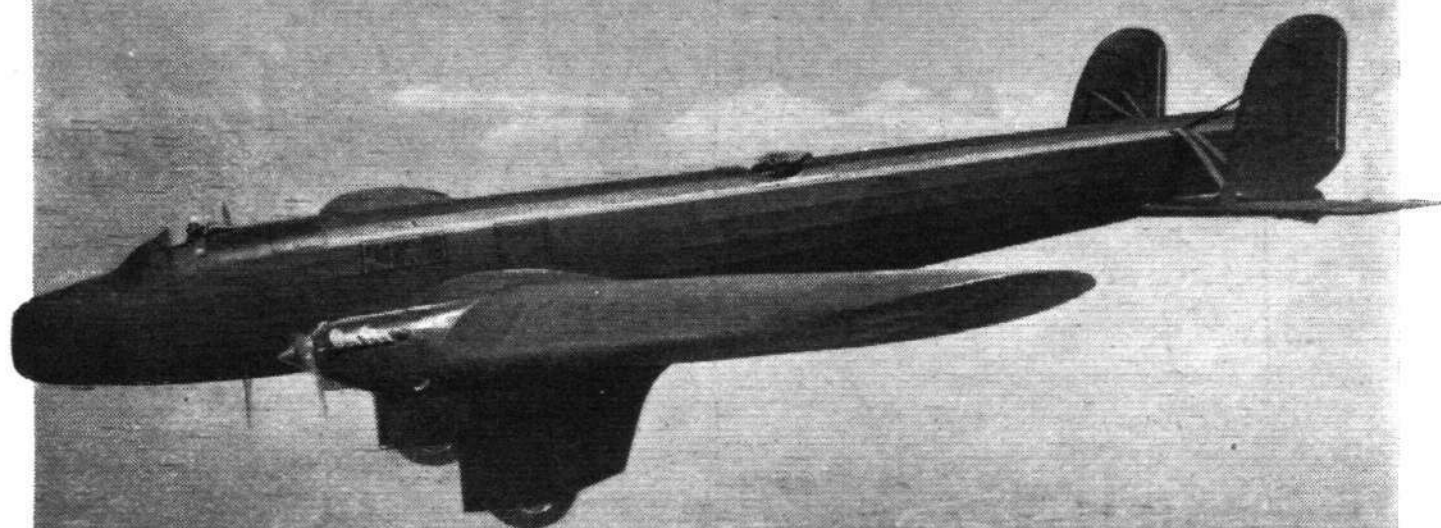
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The Air Locarno

AFTER the Treaty of Versailles had been signed, President Wilson and the British Government agreed to protect France against any future German aggression. The United States Congress refused to ratify this agreement, and from that refusal date most of the subsequent troubles of Western Europe. France, left without allies, was nervous of a war of revenge by Germany when the latter should have recovered from her defeat. For that reason she armed herself and stood in the way of all plans for disarmament; for that reason she clung to those clauses in the Treaty of Versailles which forbade Germany to re-arm. Who can blame her? For the time victory had made her strong, but the German people are potentially stronger than the French people, and France has had bitter experiences in the past.

A frightened man is a dangerous man, and a Power in a state of nervousness is a very unsettling influence in the comity of nations. Calm judgment is not easy when nerves are frayed, and many ordinary observers, as well as the professional politicians, felt that the peace of Europe could never be firmly based unless France were to receive guarantees which would restore her to a condition of confidence. The Locarno Treaty went some way in that direction, but in various respects it was not a satisfactory arrangement. The new agreement proposed by the British and French Governments is much more satisfactory, and as it contemplates primarily giving aid to France in the event of an unprovoked attack, it should quell that nervousness of hers which has had such an unsettling effect upon Europe.

As a concrete example of the confidence which this proposal has inspired in the French Government, M. Flandin and M. Laval are now willing to cancel the clauses of the Versailles Treaty which provide for the disarmament of Germany. That is a very striking proof of the value of this plan.

The other great unsettling influence in Europe has been the resentment of Germany at the humiliations imposed upon her by the results of her defeat. At the moment we are not concerned to discuss their justice or their wisdom. It is peace in the future which is at stake. Germany has been invited to join in this Locarno of the air. If she will do so, that in itself should help to avert the danger of war. There are some who believe that Germany will never be satisfied until she has wiped out her defeat by a victory in war. If that be the case, such a pact as this will restrain her ambitions. She must naturally expect a *quid pro quo*. What she is offered is the deletion of the disarmament clauses of the Versailles Treaty, and her restoration to a position of complete equality of status with the victor nations. It is true that she has re-armed in defiance of the Treaty, but none the less such a concession will be very valuable to her, and it ought to restore her *amour propre* without the shedding of blood. If the plan does this it will have removed another menace to peace.

Better Than Disarmament

It would be unwise to lay too much stress on the words "unprovoked aerial aggression." No attempt has been made to define what is provocation, and it is certain that at a crisis each nation would decide for itself whom it considered to be the aggressor. Italy behaved in that way in 1914 when she denounced the Triple Alliance between herself, Germany, and Austria-Hungary. None the less, the plan (if it is approved) should certainly lessen the risk of war by removing the nervousness of France and the humiliation of Germany.

This plan is immensely preferable to the proposals for air disarmament over which so much time has been wasted at Geneva. It is practical; not merely idealistic. While all the signatories will be strengthened by it, all will find less need for an expensive and possibly dangerous race in air armaments. Proper and reasonable development of air forces will no longer be looked

upon askance as a discreditable action for which apologies must be broadcast. It will merely enhance the common strength of the new security league. In fact, the combined air forces of the signatories will bear some resemblance to that international air force for which many have sighed as the ideal form of armament.

All commentators have laid stress on the point that Britain and Italy will gain an advantage from this pact which they did not gain from the original Locarno Treaty. By that they were bound to give help, but no one else was bound to help them. If this agreement comes into being all the signatories are equally eligible for help if attacked by one of the other signatories. Not since Waterloo has Britain had the security of her islands guarded by such powerful allies, and between the conditions of 1815 and 1935 there is no comparison. If this agreement is signed, British citizens no less than French citizens may sleep the sounder at night.

Seaplane Services

A SPECIAL article on another page pleads for a greater use of flying boats on our Empire air lines. It is a fact that the British Empire has grown up mostly round seaport settlements, such as Madras, Calcutta, Bombay, Singapore, Sydney, Melbourne, Durban, and Capetown. At these seaports can be found the traffic which calls for transport either by

sea or by air. Air-line operators want to earn profits, and it would seem sound policy for them to connect up these seaports by air. From such premisses the obvious conclusion is the use of seaplanes of the flying-boat class; yet, as a matter of fact, we find our Empire air lines mainly following inland routes and using landplanes. Only on the crossing of the Mediterranean from Europe to Egypt are seaplanes in regular service.

The explanation appears to be that when the operators mapped out their routes as pioneer efforts, the terminus seemed to them more important than the intermediate ports of call. The great thing was to reduce the time taken in getting to Capetown, to India, and to Australia. From that point of view, Karachi became of more interest than Bombay, Kisumu more important than Nairobi. The process is easy to understand. Moreover, air-line operators have certainly shrunk from the use of seaplanes wherever possible, holding them to be less economic than landplanes.

That this point of view will gradually change there is little doubt. The efficiency of flying boats is improving in all respects, and the modern tendency to use larger and still larger aircraft must mean that in time the cost of special aerodromes for very heavy landplanes will outweigh all the alleged disadvantages of flying boats. Coastal services are then likely to come into their own. Mail services will still need the shortest route, but really large aircraft will be boats.



NEW ZEALAND'S CHOICE. Sir James Parr, High Commissioner for New Zealand, last week attended Brooklands for a demonstration of one of the twelve "Vildebeests" which have been ordered for coast defence work. As related on p. 150, Mr. J. Summers, Vickers' chief test pilot, treated Sir James and a large party of visitors to a brilliant display of flying.

The Outlook

A Running Commentary on Air Topics

Converted Aircraft

IT would be difficult to find a better example to prove an argument often advanced by *Flight* than the American Northrop 2E day bomber, described and illustrated in this issue. When ill-informed critics have pointed to some high-performance foreign civil aircraft and called attention to the fact that we have not in this country a military type of equal performance, our reply has been that by the time the civil machine is converted and has to carry the equipment demanded by a military aeroplane, its outstanding performance will have dwindled to a very ordinary figure.

With its external bomb load removed, the Northrop 2E has a maximum speed of 226 m.p.h. at 7,000 ft. When the bombs are carried underneath the centre-section of the wing the speed has dropped to a figure quite close to that attained by British military aeroplanes of comparable types.

That this must be so is, of course, quite obvious when one comes to think of the speeds involved; 226 m.p.h. is 332 ft./sec., and 1 h.p. is 550 ft. lb./sec. Allowing for airscrew inefficiency, the actual power required to overcome a resistance of one pound at 332 ft./sec. is thus not very far short of 1 h.p.

With a structure like that used in the Northrop it is almost a physical impossibility to stow bombs inside either wing or fuselage in such a manner that they can be readily released. The wing roots are already used for housing the petrol tanks, of which a considerable number have to be used, owing to the small space between the multiple wing spars.

Girder or Monocoque?

ANOTHER problem recalled by an inspection of the Northrop bomber is that of fuselage construction.

Undoubtedly, at speeds above 200 m.p.h. a smooth-skin fuselage of good shape is very important in reducing drag. But, after being accustomed to British girder-type fuselages, in which large panels of the fuselage covering can be removed, one cannot help realising that the installation of the very extensive military equipment in a monocoque fuselage presents some difficulty. Instead of workmen being able to reach in from outside and work in convenient positions, they must crawl about inside and operate in a confined space. Subsequent inspection during the service life of the machine is rendered difficult for very similar reasons.

One feels that British designers are well advised not to "rush into monocoque" without giving such problems very careful consideration.

Flying at Its Best

NO newcomer to air travel could fail to be impressed by an hour's journey in the bright sunlight above the clouds, and the pilot who makes a habit of flying in the paradise of the upper air is probably the finest advertising agent possessed by his operating company. Needless to say, it is essential that the machine should be in constant radio communication with ground stations and that it should be brought through if the ceiling shows signs of "cracking."

In spite of the added difficulties, the winter is the best time for such excursions. Twice during last week a member of the Staff took a "blind"-equipped light aeroplane

from a dull world, where occasional rain was falling, through two thousand feet of cloud and out into a new country where a brilliant white carpet stretched apparently to the edges of eternity. On each occasion the lower cloud surface was loose while the upper surface was entirely smooth. In summer, cloud-type and height are much less constant and the general impression of clarity is not so marked.

It is worth remarking that the almost incredible sense of lightness and freedom must not cause the amateur to forget himself and to fly on without making mental calculations with the aid of watch and compass. If he *does* forget, the dull, dark earth, when seen again, will be entirely and depressingly unfamiliar. "Up wind for six minutes; down wind for four minutes," should be his motto, and he should discover, before boring into the opaque, whether any other cheerful person has stratospheric intentions.

That Gliding Upgust

LAST Saturday's meeting of the British Gliding Association would appear to have cleared the air and left the way open for a speedy understanding to be arrived at with the Air Ministry as to the disposition of the £5,000 per annum which has been allotted for the betterment of gliding.

It is to be assumed that the B.G.A., as previously constituted, is dead, and that, Phoenix-like, the new body has arisen out of the ashes of the funeral pyre. The new body, having been formed on lines agreed to by the Air Ministry, will presumably be really representative of the best of the gliding movement.

Harnessing the Passenger

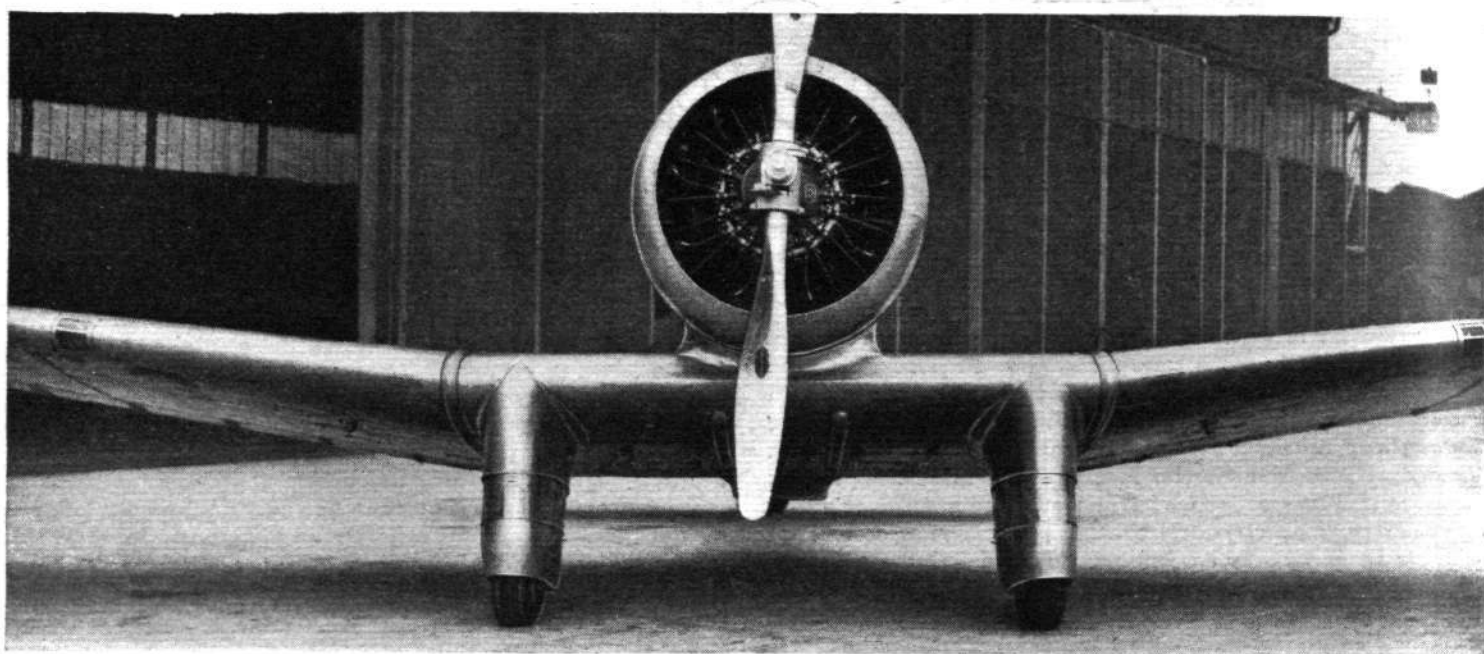
ALTHOUGH many of the stories one hears and reads of the buffeting received by air-line passengers on rough days are grossly exaggerated, it does appear that these passengers may not always be given the consideration they deserve. The effect of a really bad "bump" may be comical to the experienced, but it is often devastating, both physically and mentally, to the newcomer.

Some commercial machines are fitted with safety belts for the passengers' use, but many are not; and, in any case, the experienced passenger is a moral coward when it comes to making even a gesture with this much-despised equipment.

Remembering the number of people who have been partially stunned by luggage racks and other fixtures on a "bumpy" day, it might be suggested that the chief pilot should use his own discretion, and insist on the use of these belts.

Furthermore, some charitable individual might evolve a foolproof type of harness which could be attached or detached without trouble, and which would hold the passenger firmly enough to allow him to read or sleep in mile-a-minute gales over rough country. In winter, with the risk of ice formation, it is not always possible for even the most considerate pilot to take the machine up through the clouds into smoother air.

Against any "belt" proposal, of course, there is always the objection that the nervous passenger is made apprehensive the moment he enters the machine, rather in the manner of a patient seeing the instruments laid out in an operating theatre.



A 200 m.p.h. BOMBER

"Flight" Inspects the American Northrop 2E, Purchased by the Air Ministry and Now Undergoing Tests at Farnborough : Nearly 95 per cent. of its Own Weight Carried as Disposable Load : Range, with 1,100 lb. of Bombs, 1,500 Miles at 165 m.p.h.

HITHERTO, comparatively little has been known in this country about a particularly interesting American military aircraft, the Northrop 2E, but some months ago the British Air Ministry purchased a specimen, in accordance with the policy of acquiring examples of some of the more outstanding foreign types of aircraft from time to time. By the courtesy of the Ministry representatives of *Flight* were recently permitted to visit the Royal Aircraft Establishment, where the machine has been undergoing very searching tests, and the following notes and illustrations indicate some of the more interesting features of the design. The tests at the R.A.E. have included performance and strength tests, and these will be supplemented shortly by further flying tests at Martlesham Heath.

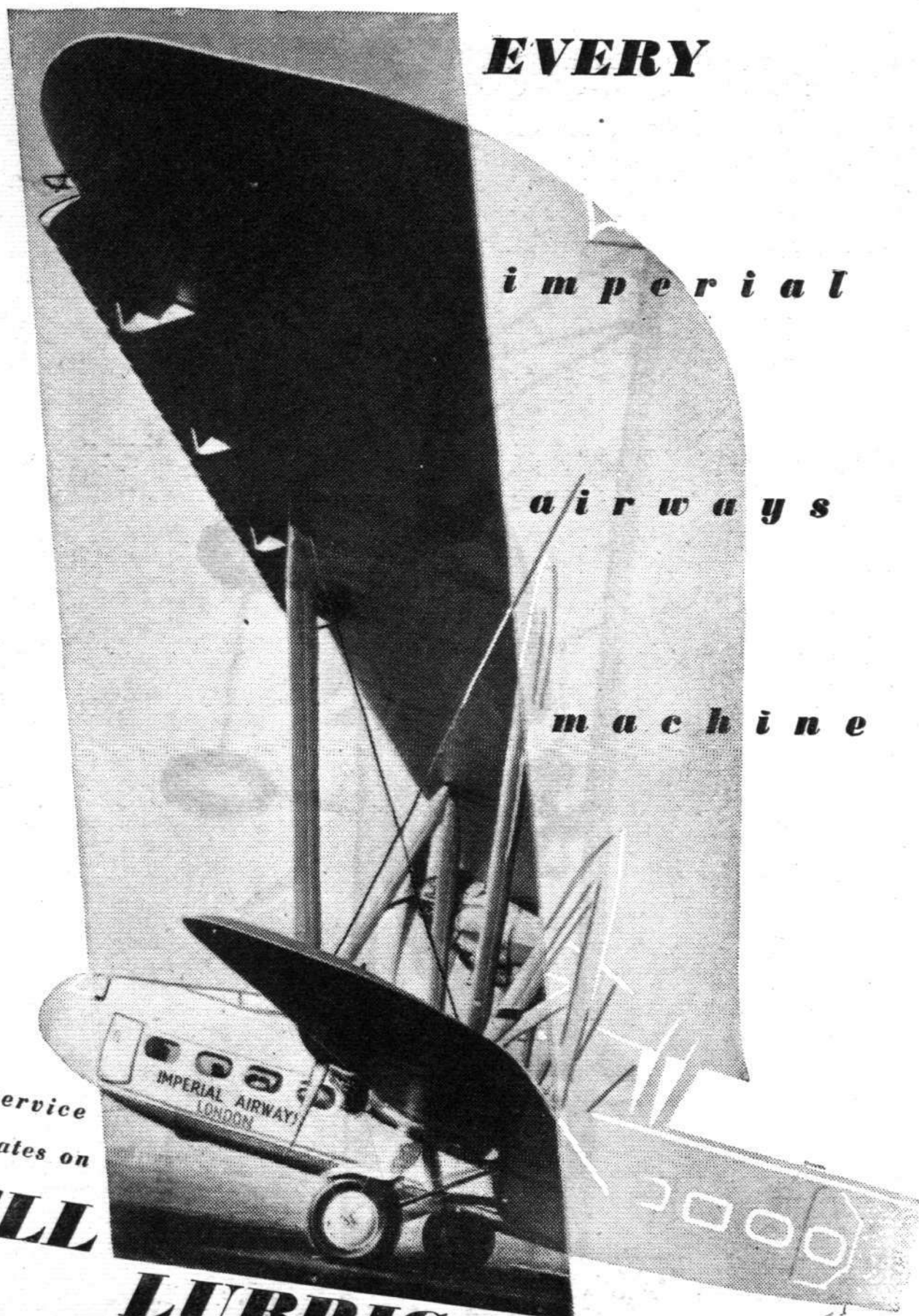
Although not by any means a new type, and, in fact, an obsolescent aeroplane as military aircraft go, the prototype having been built more than two years ago, the Northrop 2E gives an indication of what can be done by very skilful design. The first machine of the type was

built for Mr. Frank Hawks as a long-range high-speed "super-touring" aeroplane with a non-stop range of something like 2,000 miles. Known as the *Sky Chief*, this machine was described and illustrated in *Flight* of January 19, 1933. From this prototype aircraft were first developed the "Gamma" and "Delta" commercial aeroplanes, which differed mainly in the layout of the cabin and pilot's cockpit, one having the pilot right in front, ahead of the cabin, while in the other the pilot sat far back, behind the cabin. Yet a third variant on the same theme was the Northrop 2E long-range light bombardment type, or, as we should term it, light bomber.

Fully detailed figures are not yet available, but it would appear from the Farnborough tests that the performance figures claimed by the manufacturers are, in the main, borne out in practice. For instance, with the bombs removed, the machine has a maximum speed of 226 m.p.h. at an altitude of 7,000ft., the height at which the Wright supercharged "Cyclone" engine is rated. So far it has not been possible to check the makers' claim for a full-



Running-up the engine : The Northrop 2E outside the hangars at Farnborough. (*Flight* photograph.)



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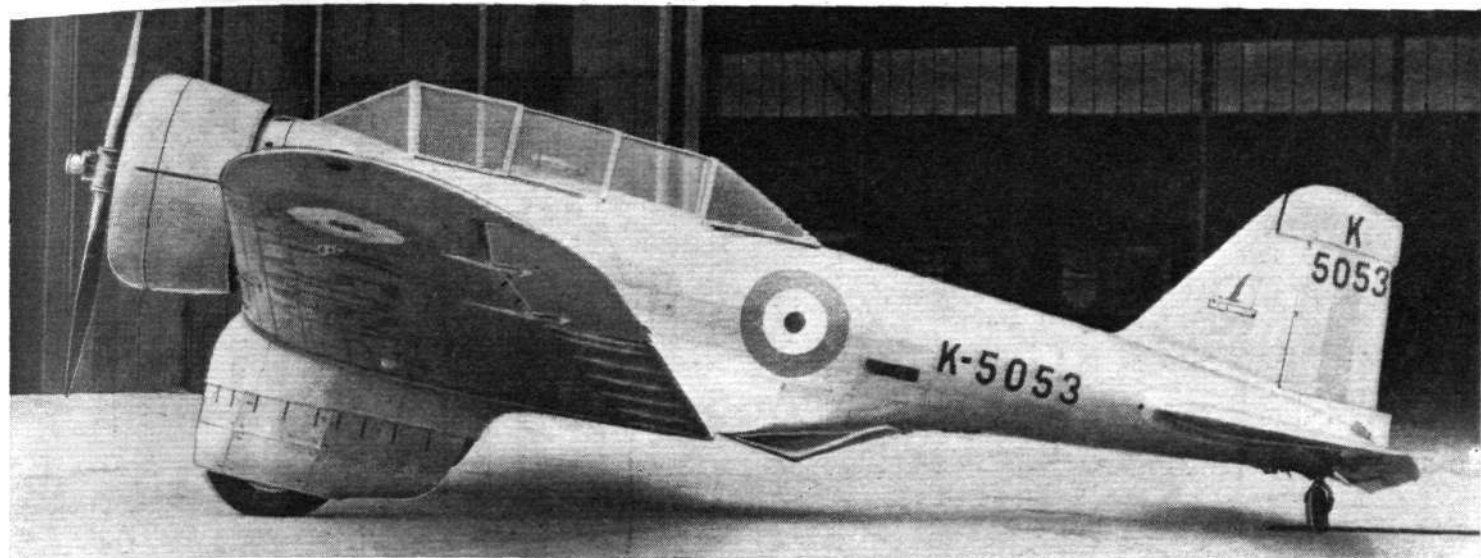
—Such as AUSTIN, FORD, HILLMAN,
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THE HAWKER "DEMON," Rolls-Royce "Kestrel" engine. A two seater aircraft possessing excellent fighting qualities and unequalled performance.

Flight Photo.

[ADVT.]



The addition of the "conservatory" roof above and a bomber's position below somewhat mars the clean lines. (*Flight* photograph.)

load range of 1,500 miles at an average cruising speed of 165 m.p.h., but there seems to be little reason to doubt that the claim is substantially correct.

Driving a Hamilton Standard two-bladed controllable-pitch airscrew, the nine-cylinder Wright "Cyclone" engine is rated at 715 b.h.p. at 7,000ft. and 1,950 r.p.m. As the machine weighs, fully loaded, 7,500lb., a maximum speed of 226 m.p.h. must be regarded as remarkably good, and bears out the impression of "clean" aerodynamic design which one forms on inspecting the machine.

Structurally, also, the Northrop 2E must be admitted to be well above the average in efficiency, the ratio of gross weight to tare weight being 1.948. There are many ways of judging efficiency, and no simple ratio such as that quoted can be expected to tell the whole story. So many things have to be taken into account, such as stiffness, strength, durability, and ability to stand manhandling. But assuming a given aircraft to be satisfactory in service, the percentage of its own weight which it will carry as disposable load does give an indication of the skill with which the designer has solved his many conflicting problems. In the case of the Northrop 2E the machine carries just under 95 per cent. of its own weight. Until quite recently an average figure for a very wide range of

types has been 65 per cent. of the tare weight, so that it must be conceded that the designers have shown skill.

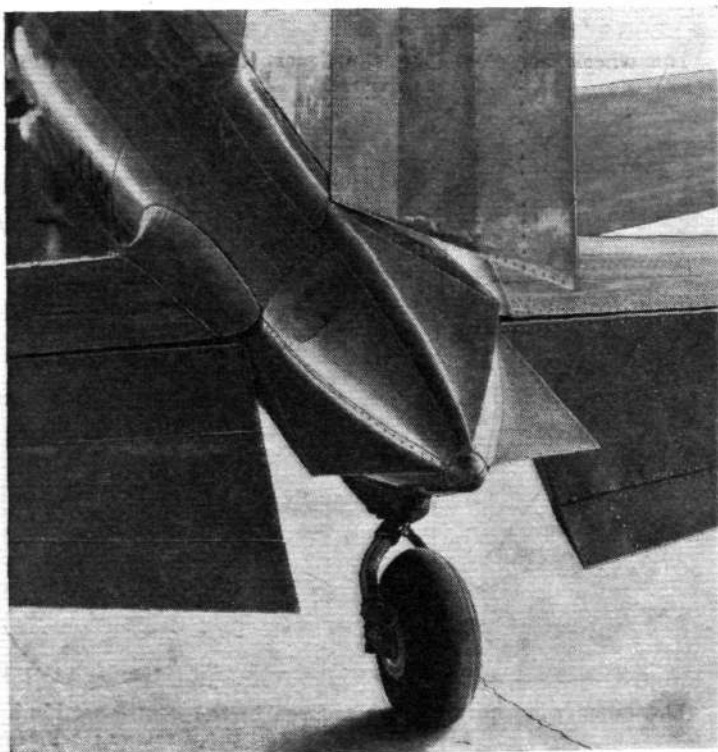
In spite of the fact that the machine is a cantilever monoplane, the wing weight is under 2.4 lb./sq. ft. This figure includes machine-gun mountings, leading-edge landing lights, navigation lights, and aileron mass balances. An inspection of the structural methods employed does not reveal any very great refinements. For example, the wing covering is of one gauge throughout, and no attempt has been made to save weight by having a heavier gauge near the wing roots and a lighter gauge at the tips.

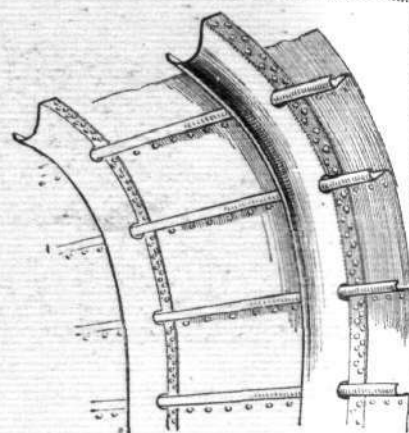
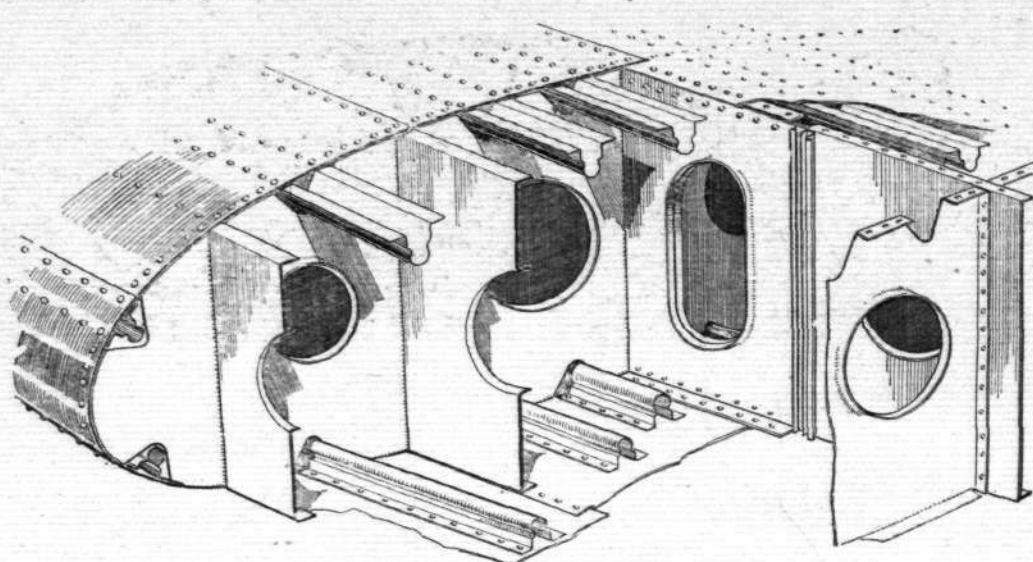
The wing structure itself is of what might be termed the multicellular type. That is to say, the box-section spar to which we have become accustomed in this country is not used. Instead, the designers employ a number of plain channel members, to the flanges of which the wing covering is riveted. In between these channel-section members or spars the Alclad wing covering is stiffened by stringers of "Omega" section. The wing ribs are generally similar to the "spars" in that they are light channels with flanged circular lightening holes. They are, of course, riveted to spars and covering.

An interesting feature of the wing design is the manner of attaching the outer wing portions to the centre-section.

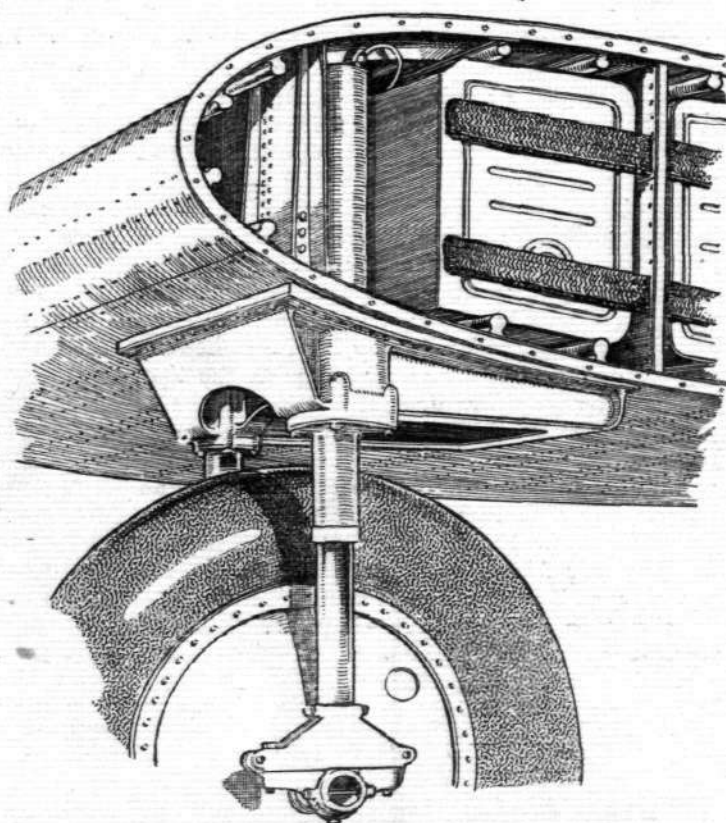


The tail unit: Note the trimming "tabs" on the elevators, and the mass balance which disappears into the tailplane. The upper member of the cruciform stern piece is twisted in order to reduce yawing due to the rotating slipstream. (*Flight* photographs.)





Structural details of the Northrop 2E. The form which the multiple spars and stringers take is shown on the left, while the general "theme" of the fuselage construction is illustrated on the right.

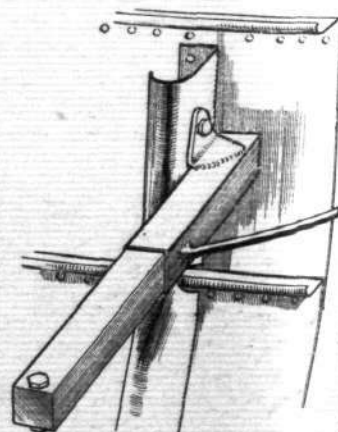
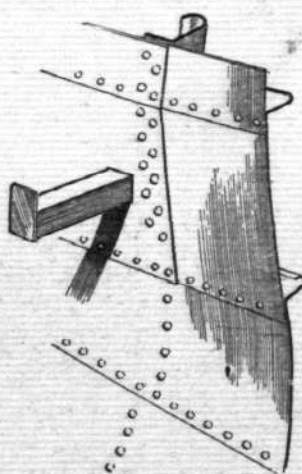
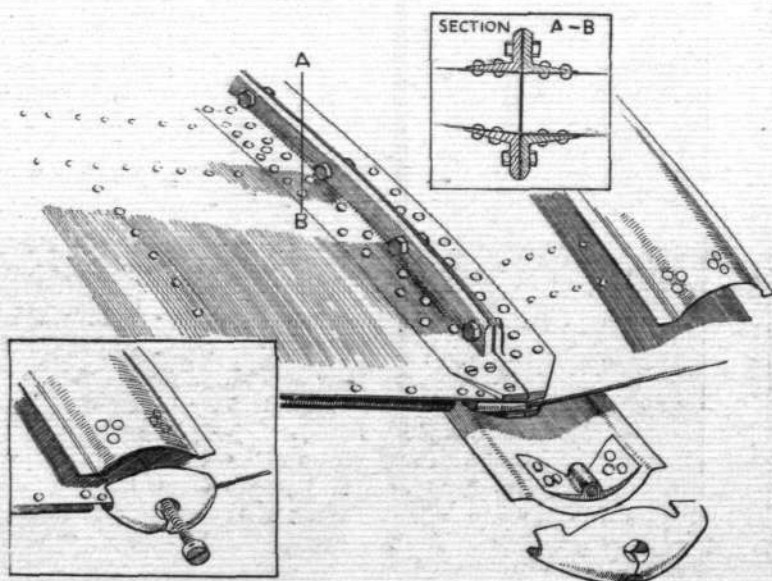


The wheels are carried on cantilever forks from the wing spars.

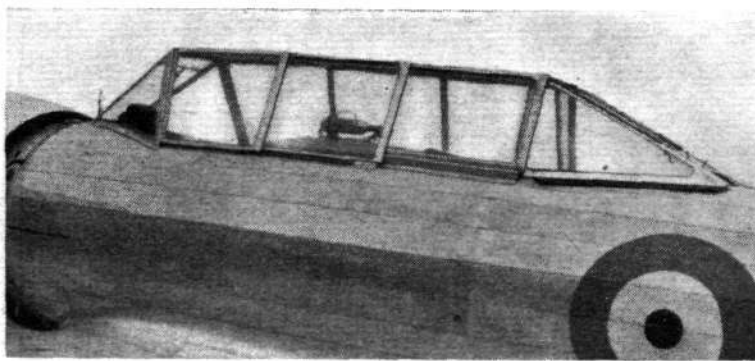
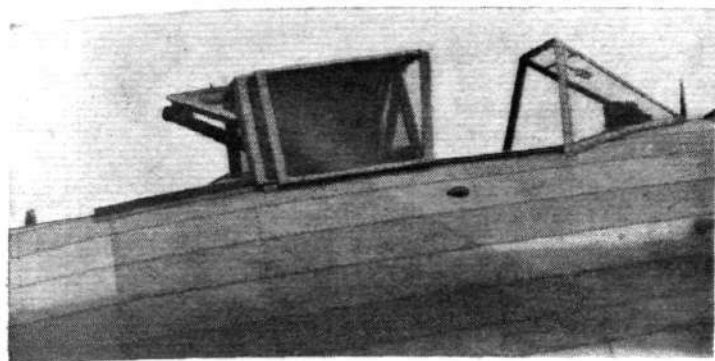
Instead of making the joint on the ends of the spars, a method which would have been rather difficult with a multi-spar construction, it is made with the aid of L-section strips in the plane of the wing chord. These strips have their horizontal flanges riveted to spars, stringers and skin. The vertical flanges of the centre-section are secured to those of the outer wing portions by bolts fairly widely spaced. The whole joint is covered in by a smooth capping strip secured at the trailing edge by a very neat quick-release fastening, as shown in one of the sketches.

On theoretical grounds this joint is open to criticism, because of the offsetting of the securing bolts. In practice, however, it seems to be satisfactory, probably because the vertical flange of the L-section strips is quite thick.

With a wing loading of more than 20 lb./sq. ft. the landing speed would be intolerably high were it not for the fact that split trailing-edge flaps are used. These do not extend over the entire wing span but only over about two-thirds of the span of the outer wing portions, their inner ends being at the wing joint. It may, perhaps, be remembered that in Frank Hawks' machine the split flaps were larger and that ailerons of the "park bench" type were placed above the wing. In the 2E slotted ailerons of the normal Handley Page type are fitted. These, incidentally, are fabric covered, presumably because of mass-



The outer wing portions are secured to the centre-section by flanged joints, as shown. On the right are details of the neat steps fitted on the sides of the fuselage; when not in use these steps disappear into the fuselage.



Protection is afforded to the crew of the Northrop by sliding roof windows, one or more panels being closed or opened at will. (Flight photographs.)

balancing, and are the only surfaces on the machine to be so covered. The mass balances are in the form of lead strips placed inside the leading edge.

The trailing-edge flaps are single-surfaced, and look rather light for their work. A notice in the pilot's cockpit points out that they are not to be used at speeds above 100 m.p.h. They are stiffened internally by channels parallel with the span, and externally by fore-and-aft channels. The flaps are operated by toggles—short links rather like turnbuckles, and adjustable for length in a similar way—running from a sliding tube inside the wing to eyebolts on the front internal channel on the flap. The sliding tube is actuated hydraulically by a cylinder and pump in the cockpit.

In the construction of the fuselage an ingenious system has been adopted. Fore-and-aft "planking" is used, and instead of stringers riveted to the skin, one edge of each "plank" is turned inwards and then curled over to form a stiffening member. The fuselage formers, which are of very simple section, are pierced near the skin to allow the turned-over edges of the planking to pass through as continuous stringers. The system is ingenious, but does not appear to be particularly cheap from a manufacturing point of view. The centre-section of the wing is built integrally into the bottom of the fuselage, the wing spars being riveted to the fuselage formers. Needless to say, fillets are used in the corners between upper wing surface and fuselage sides.

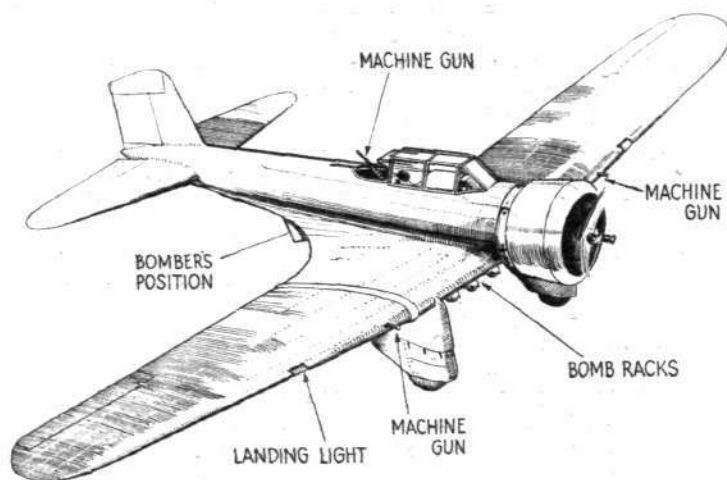
The tail surfaces are of a form of construction similar to that used in the wing. The elevators are mass-balanced by lead weights carried on arms projecting forward from the hinge-line, and the weights are enclosed in the tail plane at all except large elevator angles.

Tail-trimming would be complicated with the shape of fuselage used, owing to the difficulty of making a neat sliding joint between tailplane spar and the curved sides of the fuselage. Instead, trimming "tabs" on the trailing edge of the elevator are used.

With the multi-spar wing construction adopted there is little space inside the wings for stowing any large objects, and, presumably, partly for that reason, a "trousered" undercarriage has been used instead of a retractile one.

The wheel forks are cantilevered from specially strengthened centre-section spars, and it was noticed that the designers had avoided "handing" the wheels, both of which are of the same "hand," so that on the port undercarriage leg the brake is on the inside, while on the starboard it is on the outside. In this way only one type of wheel need be stocked as a spare.

The 715 h.p. "Cyclone" engine is enclosed in a long-chord N.A.C.A. cowl. An oil cooler is placed under

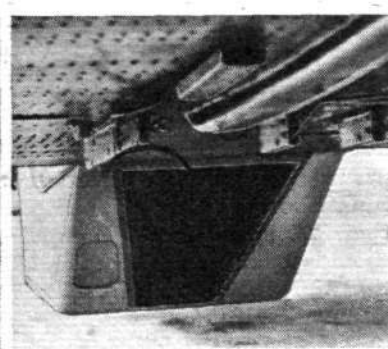
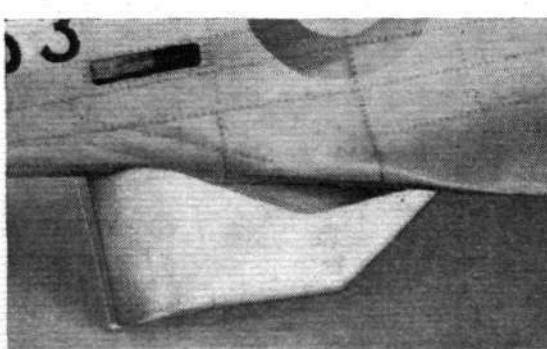
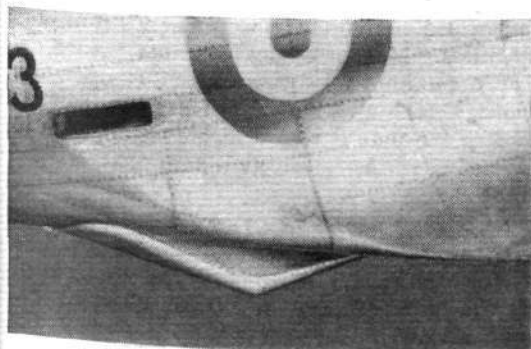


This sketch indicates the locations of the bombs and machine guns.

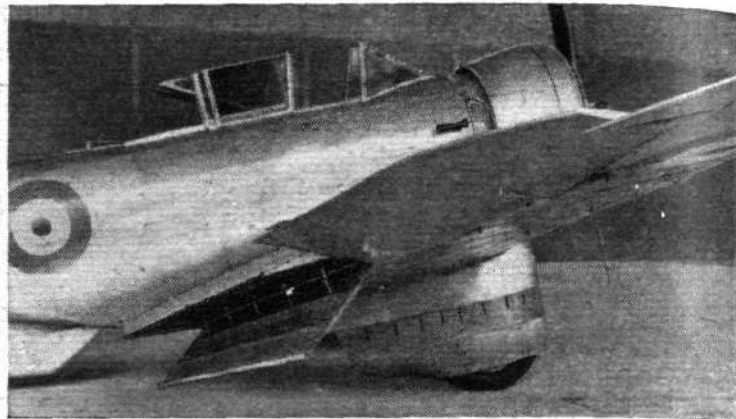
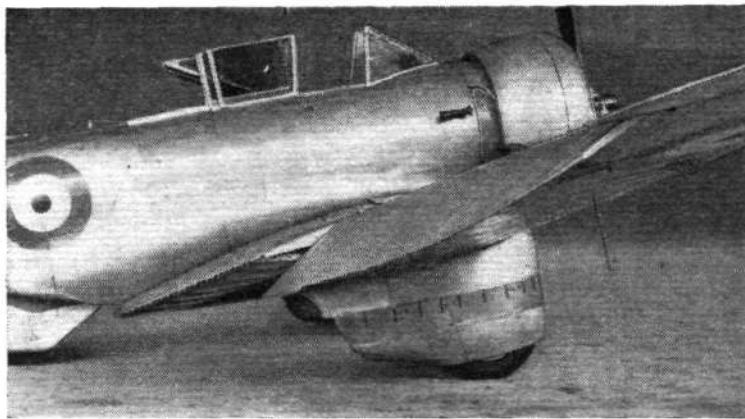
the engine mounting, just aft of the rear edge of the cowl, and air under forced draught is led to the cooler by two large-diameter tubes the forward ends of which are led out between the lower cylinders.

Fuel is carried in tanks housed in the centre-section of the wings, the total capacity being 362 U.S. gallons. When the machine is cruising at 165 m.p.h. it is claimed that this suffices for a range of 1,500 miles. A bomb load of 1,100 lb. is still available at that range.

Turning a civil into a military aeroplane must always



The bomber's sighting nacelle, shown retracted and lowered. On the right is a front view, showing the window. (Flight photographs.)



The Northrop's flaps. On the left the split trailing-edge flap is shown closed, and the slotted aileron in the "down" position. On the right the flap is open and the aileron "up." Operation is hydraulic. (*Flight* photographs.)

necessitate a compromise. In the Northrop this has taken the form of carrying the bombs under the centre-section, where their extra drag reduces the performance to a degree which cancels the advantages of the originally clean aerodynamic design. In fact, with the bombs in place, the speed is no greater than that of comparable British types. To give the bomber any view at all a retractile bombing station is built into the floor of the gunner's cockpit. This has a window facing forward, and one suspects that after a very short time this window becomes covered with oil and fairly useless for accurate work.

A machine gun is provided in the rear cockpit. It covers an arc of less than 180 degrees, i.e., it cannot be fired quite broadside. Two guns are provided for the pilot.

They are placed one in each wing, a location which has the advantage that, as the guns are outside the propeller disc, no interrupter gear is required. On the other hand, a jamb cannot be cleared. To give the crew a reasonable view and yet keep them out of the slipstream, a "conservatory" roof has been built on to the cockpits. This roof is in sections, one or more of which can be opened by sliding them along.

Of the qualities of the Northrop 2E as a military machine it is difficult to form a decided opinion. That it will have to depend on straightforward speed rather than on aerobatics appears to be indicated by a warning in the cockpit pointing out that the machine must not be dived at speeds in excess of its normal maximum.

THE R.A.F. in the FAR EAST

Work of the Squadrons at Singapore : Points from a R.U.S.I. Lecture

MEMBERS of the Royal United Service Institution learnt a good deal about the work of the Royal Air Force in the lands and seas which surround Singapore when Group Capt. A. C. Wright, A.F.C., lectured on the subject on Wednesday, January 30. Air Vice-Marshal P. B. Joubert de la Ferté, C.M.G., D.S.O., was in the chair. The lecture was illustrated by a very fine selection of slides, which brought home to the audience as nothing else could have done the difficulties of making aerodromes and selecting anchorages in the regions beyond India.

The lecturer dealt mostly with the work of No. 205 (F.B.) Squadron, whose "Southamptons"—they will soon have "Singaporens"—have scoured the seas as far as Australia and Hong Kong. In the military sense, he said, the boats were the reconnoitring force whose function it would be to find a hostile fleet by day or night. The two squadrons of torpedo-bombers now at Singapore, Nos. 36 and 100, would form the striking force.

Exercises With Liners

He said that the very closest co-operation between the flying boats and the landplanes was necessary, and they must constantly practise together. Whenever a warship passed Singapore an exercise was arranged; but, unfortunately, warships did not pass very often. Accordingly they often agreed with captains of liners that the boats should practise on them, first finding them and then plotting their course. In tropical rain it was not too easy to find even a brilliantly lighted liner. The R.A.F. also joined in exercises with the Army garrison and the local Volunteers.

The lecturer harped mostly, however, on the survey work carried out by the "Southamptons." He pointed out

that a radius of 2,000 miles from Singapore included Calcutta and Darwin, and almost included Shanghai. The flying boat squadron had to learn all about that tract of the earth, and in the first place had to find anchorages here, there, and everywhere. He described the process of selecting an anchorage from the air, where the coral reefs (though invisible from the surface) could be clearly seen. The whole of the groups of Andaman and Nicobar islands had not been fully surveyed, and owing to river silt the coastline had altered not a little since the Admiralty charts were made in 1879. No. 205 (F.B.) Squadron undertook the survey work and spent a most interesting and busy period of forty-five days on the two groups.

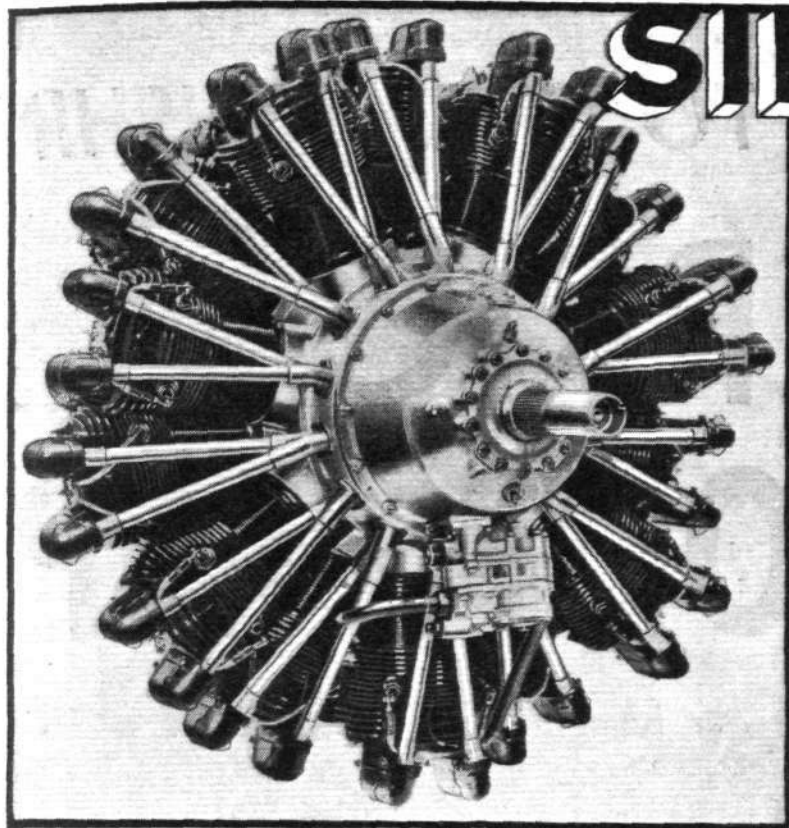
The lecturer also described formation flights to Darwin and Hong Kong. Once the Royal Australian Air Force met them at Darwin for combined exercises, and it was surprising to learn that the Australians had flown farther to get there than the "Southamptons" had done.

The civil air routes are being developed, and now, between Singapore and Calcutta, there was a landing ground about every fifty miles. Meteorological services needed developing, and there ought to be the closest co-operation between the French, Dutch and British. However, matters had now advanced so far that it was under consideration to appoint a Director of Civil Aviation at Singapore.

WOMEN'S ENGINEERING SOCIETY DEBATE

The second debate of the series at present being held by the Women's Engineering Society is entitled "The Problem of Britain's Internal Air Lines," and will take place at 20, Regent Street, London, W.1, next Tuesday, February 12, at 6.30 p.m.

Col. F. C. Sheldermine, Director-General of Civil Aviation, will be in the chair, and the chief speaker will be Mr. William Courtenay.



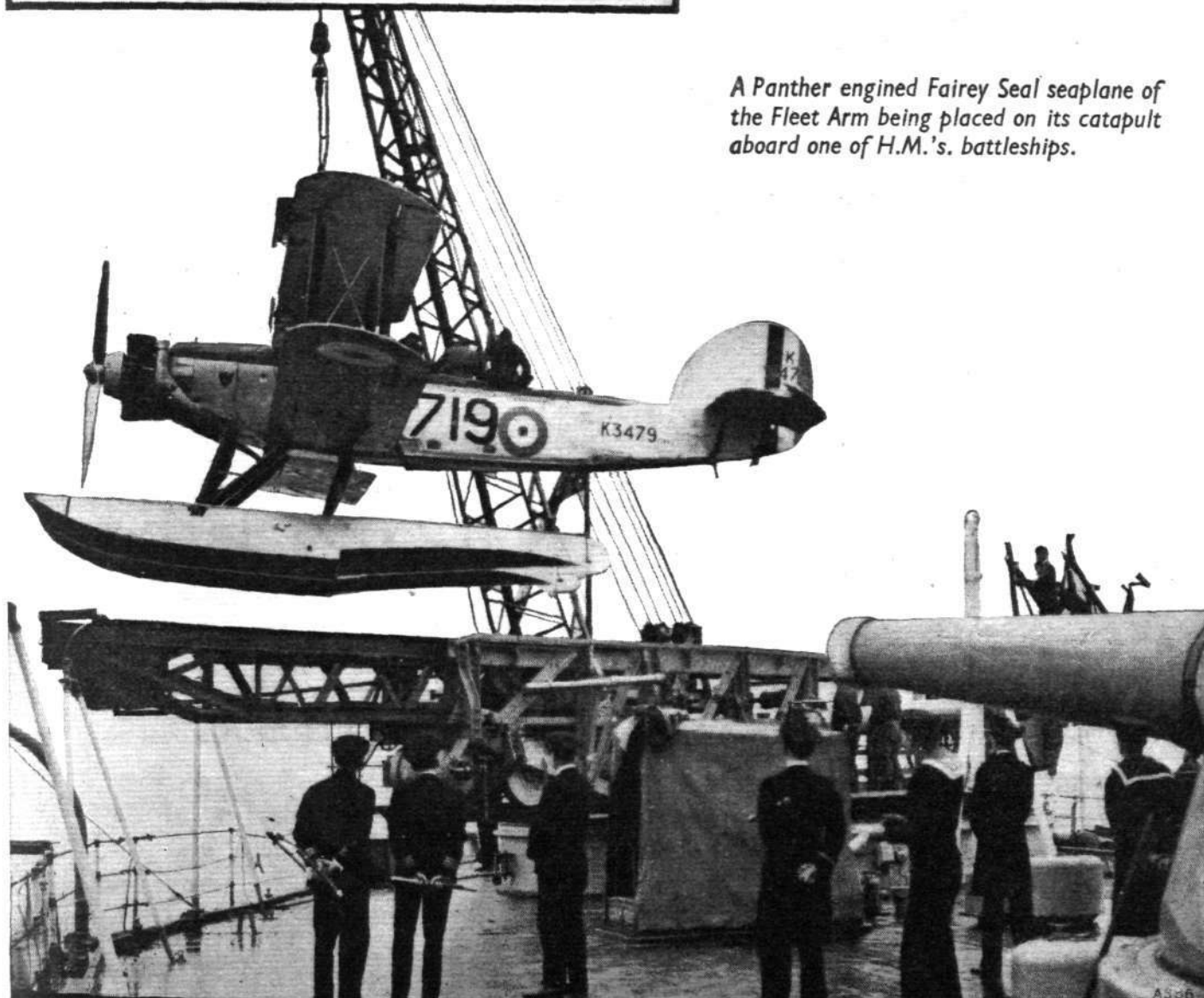
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A Panther engined Fairey Seal seaplane of the Fleet Arm being placed on its catapult aboard one of H.M.'s battleships.



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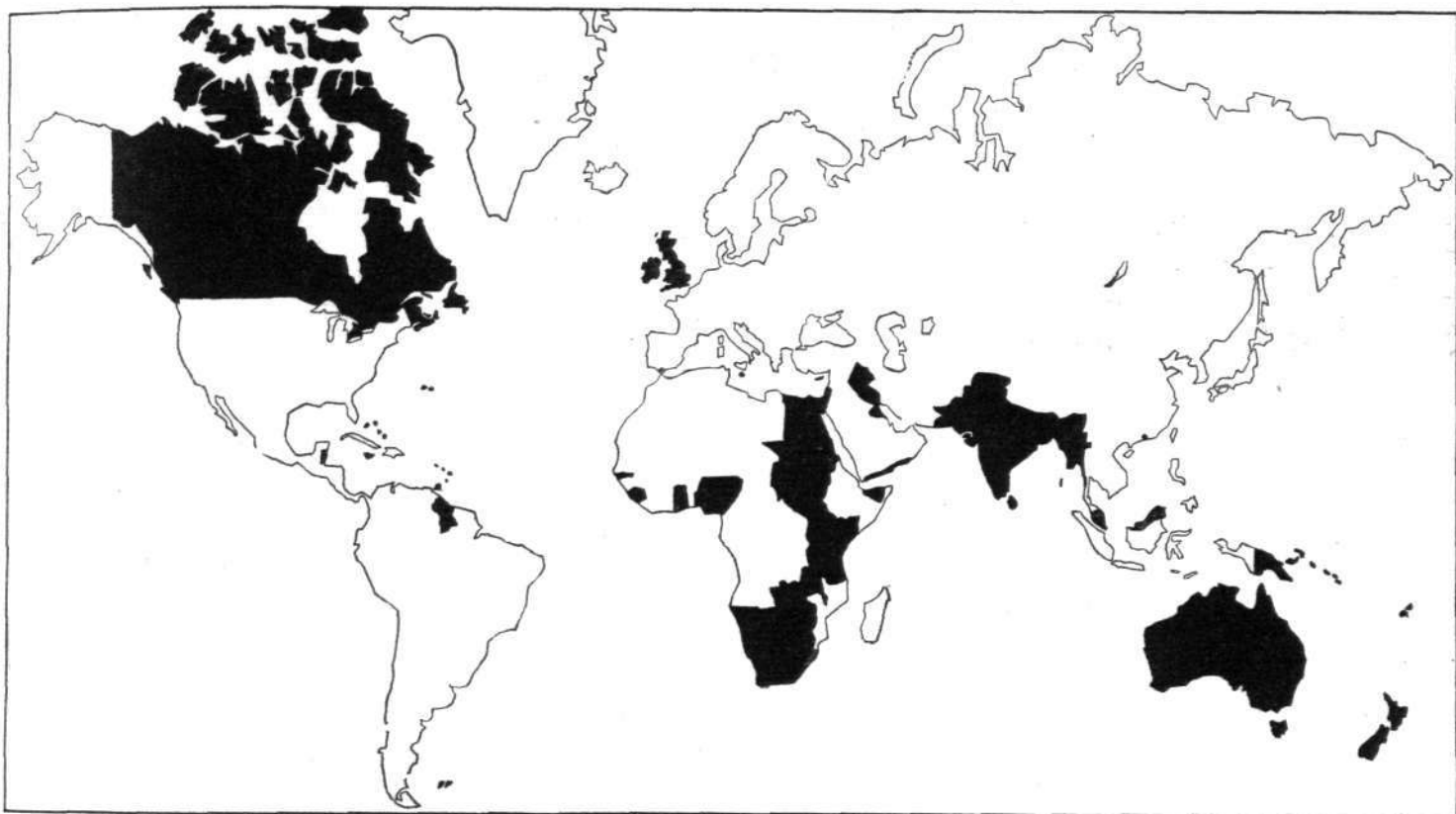
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LINK up the EMPIRE!

A Plea for More Flying-boat Services and for a Wide Extension of Our Empire Air Lines ; Building for the Future

By C. N. COLSON



"... ours is the most scattered collection of pieces of land of all the collections which go to make up the empires and nations of the world." In this map of the British Empire are included those closely associated kingdoms, Egypt and Iraq.

EVEN a cursory study of the make-up of the British Empire must engender in the minds of thinking people a question as to why the air is not more widely used for linking up this widely scattered Empire of ours.

Take a look at a map of the world and examine in particular all those pieces which are coloured red (passing for the moment the irony of colouring the least Communistic Empire red!). Doesn't it strike you at once that ours is the most scattered collection of pieces of land of all the collections which go to make up the empires and nations of the world? This will probably recall to you the fact that if it had not been for our supremacy on the sea in years gone by the British race would never have been able to hold together such a scattered Empire. From that, ponder on the present day; think of the great liners and merchant fleets of other countries; of the numbers of ships laid up in English estuaries, and of the many abortive naval conferences, and then start to wonder what the effect on the stability of this Empire is going to be when our gradual loss of maritime supremacy really starts to make itself felt.

Probably you will be overcome with despondency. But there is no need for that; the remedy lies above you. Look into the air, and there you will see the solution of the Empire's problems. Everything the sea did for the British Empire during the days of its foundation can now be carried on, and carried on even better, by use of the air. Like the sea, the air knows no boundaries. They are both media in which everyone is free, or nearly so, to come and go as he pleases. Unfortunately, the air over land becomes almost daily more cluttered up with

restrictive regulations; before long it will be as useless a highway for international transport as is the land itself to-day. It is primarily the air over sea to which we must turn, and those two mediums used together offer possibilities for the building up of transport services which will link together our Empire for its commercial, political and military betterment.

The air services which to-day run to the ends of our Empire are magnificent in the work they have achieved. They fulfil their purpose and serve as a fast-moving stream down which mails and commerce can flow, but they are limited in their scope, benefiting primarily the parts of the countries along their routes. Take, for example, that masterpiece of organisation, the Cape-to-Cairo air route. Throughout its length it is mainly over British territory, and, as such, has already become the best-used highway of that vast area; but it has been laid out as a convenient route to the Cape rather than to serve centres of commerce on the way. However, as an air line this all-red route through Africa has proved itself since the day it first started.

Nevertheless, I suggest that there is a very great need for a wider view of the duties of an Empire air line. The aerodromes of the existing route are in many cases built in somewhat out-of-the-way places, and that does not somehow seem a sound commercial proposition. Consider for the moment the way in which a continent like Africa has been developed. You will see at once that its development lines have been such as to produce a flow of trade from the interior *via* rivers and railways to the coast, so that it is on the coast that you have the really busy

centres of commerce and industry. In the past, of course, ships have linked these centres with each other and with the rest of the world, and in many cases the capture of such a centre by one nation from another has formed a nucleus around which has grown a country to be added to that of the conquering nation.

Look at the West Coast of Africa; there in particular you can see what may justifiably be termed outposts of the British Empire, most of them Crown Colonies separated from the vast places of the interior, and from themselves, by territories belonging to other countries. So it is with a great deal of the rest of the British Empire. The day when shipping could supply the prime needs of these scattered territories is gone. To-day unity is only to be achieved by a fast means of transport which will enable the Home Government to make contact with every point in a very short space of time. Moreover, such a system of transport is not only vitally necessary for military security, but also for commercial prosperity.

Condensing all I have said so far into the form of a question, I would like to ask if it is not time that plans were laid for a far-reaching system of air lines which would primarily be run by flying-boats, and which would have as their prime object the linking together of our Empire rather than serving the interiors.

The suggestion of flying-boats of course raises many queries, but *Flight* has always been in favour of a greater application of this form of air transport, and has consistently advocated that larger and better flying-boats should be built in the hope that Britain would continue the modern equivalent of her supremacy on the seas.

Now is the time to do something about it, and, coming for the moment down to technical details, there is no denying that the performance of some of the recent foreign flying-boats described in *Flight* should give both aircraft designers and operators of this country a great deal to think about.

The question as to whether flying-boats or landplanes are better fitted for the work in question does not rest entirely on whether large flying-boats can be built to be more efficient aerodynamically than land machines, although there is a growing volume of opinion which maintains that in the very large sizes the fuselage, undercarriage and tail wheel of a land machine are heavier and less efficient than the hull of a flying-boat, and it is certain that the addition of an undercarriage means a greater number of working parts, all of which require upkeep and maintenance. The performance figures claimed for the latest American flying-boats are certainly, at least in the ratio of gross weight to tare weight (which in effect, means the percentage payload which can be carried), better than for any land machine in commercial use.

Another consideration which weighs very heavily indeed for Empire use is the fact that, as I have tried to point out, our Empire trade centres are for the most part harbours, and, generally speaking, it is both easier and cheaper to land a flying-boat in these than to purchase the land for, and build, a large aerodrome; moreover, in a great number of cases, it is quite impossible to obtain a suitable site, particularly where the point to be served by the air line is an island.

HUGO JUNKERS

Death of a German Pioneer Renowned for All-metal Aircraft Construction

IT is with regret that *Flight* places on record the death of Professor Hugo Junkers, founder of the German aircraft firm bearing his name. He died at Gauting, near Munich, last Sunday, after a long illness. He was seventy-six years of age.

Herr Junkers' first patents in connection with aeroplanes were for a tail-less "all-wing" machine, in 1910. These were taken out when he was primarily concerned with water-heating apparatus made by his firm of Junkers and Co. at Dessau. From the earliest days Junkers' aeroplanes have largely been fitted with engines also of Junkers' manufacture. In 1915 the first Junkers all-metal aeroplane was produced and high-speed production was at once started for war purposes. In 1919 the Junkers' aircraft factory was closed by the Peace Treaty.

One year later it was opened again, and from that time Junkers' aeroplanes have been known wherever commercial aviation has made progress. In Germany a Junkers' air service was run from 1921 until it was taken over by Luft Hansa in 1925. A factory was opened in Moscow in 1920, and by 1930 Junkers' aeroplanes were so widely used throughout the world that the firm were able to claim that their aircraft were flying over a third of the world's airways.

In 1923 one of the earlier Junkers, the F.13, was brought over to Croydon, following a lecture before the Royal Aeronautical Society which would have been delivered by Herr Junkers in person, had he not been prevented by illness from attending. Another achievement for which Hugo Junkers was primarily responsible was the Junkers' "Jumo" diesel engine, which was one of the first diesels successfully to be used in aeroplanes. The largest aeroplane of the firm, the G.38, was seen in this country in June, 1932.



Old and new : one of the earlier Junkers machines, the F.13 of 1923, and (right) the big G.38. (*Flight* photographs.)

THE FOUR WINDS

ITEMS OF INTEREST FROM ALL QUARTERS

Paris-Madagascar Flight

The three French airmen, M.M. Génin, Laurent, and Robert, who recently accomplished a flight from Paris to Madagascar in three days, arrived back in Paris last week-end, after having been reported missing after leaving Dar-es-Salaam.

The Autogiro in Australia

A short while back Australia saw, with considerable interest, its first Autogiro. An elderly farmer, gazing in wonderment at its evolutions, was heard to remark: "By gum, I never thought I'd live t'see a reaper an' binder up in the air!"

Woman's Altitude Record

Flying a Farman (Renault "Bengali" engine) near Paris on January 29, Mlle. Madeleine Charneaux, accompanied by Mlle. Edith Clark, established a new altitude record for women (light planes, category 1) by reaching a height of 6150 m. (19,790 ft.).

Douglases for U.S. Army

Seventy-one Douglas observation monoplanes have been ordered by the U.S. Army Air Corps in addition to the large numbers of Northrop "attack" machines and Consolidated "pursuits" which, as already recorded in *Flight*, are to be supplied. It is possible that the new Douglases will be powered with Pratt and Whitney two-row radials.

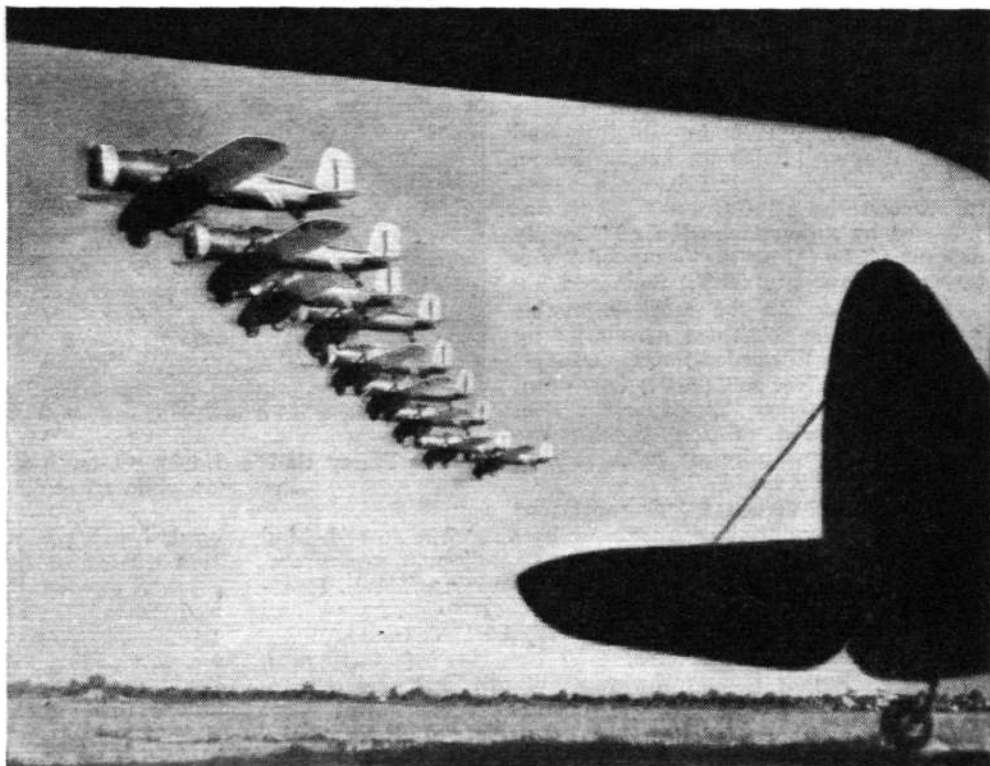
Sharks!

Hitherto sharks have had it all their own way in the Timor Sea, and of late have multiplied enormously. Now, however, that this stretch of water has become an important airway, steps are being taken to reduce their numbers, and so minimise the peril to airmen flying to and from Australia. Timorese ruling rajahs are lending their ships and men for a great shark hunt, and probably aircraft will lend a hand—and a bomb or two—also.

Twenty-five Years Ago

From "Flight" of February 5, 1910.

"The last day of January was noteworthy, for it produced remarkable performances at Chalons on the part of the two Henry Farman pupils, Van den Born and Efimoff, both easily passing the world's passenger record standing to the credit of Orville Wright, namely, 1 h. 9 m. 45 s. Although the temperature was six degrees below freezing point, Van den Born went up with a passenger . . . and continued flying for 1 h. 48 m. 50 s., during which he covered 151 kiloms., while Efimoff . . . flew for 1 h. 48 m. 30 s., covering 158 kiloms. in that time."



"I'LL STRING ALONG WITH YOU." An impression, seen through a hangar door at Miami, of the U.S. Army attack group from Crockett Field, Galveston, flying Curtiss A.12 monoplanes.

Missing Gold Found

All the gold which fell from a Hillman machine en route from Paris to London has been recovered. It was found by the wife of an unemployed labourer, and was buried deep in the ground near Inval-Boiron, in the Somme Department. The lucky finder will receive as a reward £2,300. The gold was brought to London last Thursday.



A PORTUGUESE VENTURE. Lt. Carlos Costa Macedo (left) and Carlos Eduardo Bleck (right), who are planning to fly from Heston to Rio de Janeiro, via Cape Verde Is. and Port Natal, in the D.H. "Comet," *Black Magic*. (Flight photograph.)

The Segrave Trophy

Mr. Kenneth Waller has been awarded the Segrave Trophy for 1934 for his flights to and from Australia and the Belgian Congo.

A Royal "Audax"

One of the "Pegasus"-engined Hawker "Audax" two-seaters recently supplied to the Royal Iraq Air Force is used to transport the King of Iraq about his country.

Blown from Glider

M. Paul Mechenet, while flying a glider near Marseilles last Sunday, was struck by a violent gust of wind and thrown out of the machine. He fell 500 feet and was instantly killed.

Irish Swoop Out Again Shortly

According to its manufacturers, the Bellanca long-distance racing monoplane, *Irish Swoop* (now at the Bellanca works for minor modifications), is expected to "achieve something big" in the near future.

Two American Awards

Rex. B. Beisel, of the Chance Vought Corporation, and A. Lewis MacLain, of the Pratt and Whitney Company, have been presented with the Wright Brothers' medal and the Manley Memorial medal in recognition of their paper (produced in co-operation with F. M. Thomas, of the United Aircraft Corporation) on "Cowling and Cooling of Aircraft."

A MINIATURE "HENDON"

The R.A.F. Middle East Display at Heliopolis

OBVIOUSLY modelled on the Annual R.A.F. Display at Hendon, and including several items culled from the programme of that event, the Middle East Display was held recently at Heliopolis. The programme (incidentally printed in English and French) opened with an attack by an "Atlas" of No. 4 F.T.S. on a sleeve target towed by a "Gordon." This was followed by a demonstration of "supply dropping" by "Pegasus"-engined "Victorias" of No. 216 (B.T.) Squadron.

Perhaps one of the most enjoyable events was the combined aerobatics by Flt. Lt. J. H. Edwardes-Jones, and F/O J. Worrall, of No. 208 (A.C.) Squadron, on two new Hawker "Audaxes," which, with their speed of 170 m.p.h., are among the fastest aircraft to be seen in that part of the world.

A flight of "Victorias" demonstrated the method of reinforcing a garrison by air. The story behind this event was that an imaginary post at Heliopolis was threatened, and the occupants sent a W/T message to R.A.F. Headquarters, which rushed a detachment of fully armed and equipped airmen to the scene on board the "Victorias."

Four bomber squadrons, No. 45 (IIIF), No. 6 ("Gordon"), No. 14 ("Gordon"), and No. 55 ("Wapiti") gave a demonstration of formation flying. No. 14 had flown from Amman and No. 55 from Baghdad. A display of message-picking-up was given by six "Atlases" of No. 208 (A.C.) Squadron. Small charges of gunpowder were attached to the message cords, after the method employed at the R.A.F. Display this year. Another event reminiscent of Hendon was "Instructor and Pupil" staged by two pilots from No. 4 F.T.S.

Nine instructors from the same unit in "Atlases" did formation flying with their machines tied together with light



The Fairey III F's (Napier "Lion") of No. 45 (Bomber) Squadron flying over the Pyramids while rehearsing for the Middle East Display.

cords bearing streamers. The evergreen parachute demonstration was given from the wing-tips of "Victorias." A target marked out on the aerodrome was the object of a bombing and machine gun attack by five aircraft from No. 208 (A.C.) Squadron. Three "Atlases" of No. 4 F.T.S., flown by Flt. Lt. C. A. Pike, Flt. Lt. G. B. Keily, and Sgt. A. F. Underhill, performed evolutions with smoke.

The finale took the form of a setpiece. An oil refinery, defended by aircraft and anti-aircraft guns, and employing a system for the rapid evacuation of workers in case of emergency, was attacked by Nos. 45 and 55 Bomber Squadrons. On the alarm being sounded the defending aircraft (two "Audax," one "Demon," and three "Atlases") took off and the workers were driven away in lorries. The attackers were peppered by "Archies," and both sides suffered, but the bombers got through and sent the refinery up in smoke.

Jubilee of City and Guilds College

Fifty years ago the first classes were held at the City and Guilds College. In celebration of this anniversary, on Monday last, exhibitions were given in the various departments, and, during the evening, the Jubilee was formally celebrated.

The Department of Aeronautics, under Professor Leonard Bairstow, C.B.E., A.R.C.S., F.R.S., Zaharoff Professor of Aviation, was moved from the Royal College of Science in September, 1934. Its laboratories contain an N.P.L.-type wind tunnel and a new tunnel of the open-jet type in which speeds up to 140 ft./sec. can be attained. In this latter examples of wing flutter were demonstrated. There are exceptional facilities for research in fluid motion, and the apparatus was demonstrated during the Jubilee celebrations. A fuselage model and testing apparatus were also on view, the objects of the experiments carried out being to enable calculations of the strength of structures braced with plywood sheet to be made with greater accuracy than in the past. There were also some highly interesting photographs of air-screws running at tip speeds of about 1,300 ft./sec. These are utilised in the study of sound waves.

At the formal celebrations in the evening guests were received by Lord Linlithgow, Chairman of the Governing Body of the Imperial College of Science and Technology, and Mr. W. T. Prideaux, Chairman of the Delegacy of the City and Guilds College. Among the speakers was Professor A. P. Armstrong, who is the only surviving member of the original group of professors. He said that the past seventy years of scientific advance was the most marvellous period in the history of the world. The other speakers were Lord Linlithgow, who presided, Mr. W. T. Prideaux, Professor L. N. G. Filon (Vice-Chancellor of London University), and Mr. H. T. Tizard (Rector of the Imperial College of Science and Technology).

Guests included Sir Philip Cunliffe-Lister, M.P., Lord Snell, Sir William Pope, and the High Commissioners for New Zealand and Newfoundland.

The British Gliding Association

As stated on page 137, the British Gliding Association has been reorganised. Mr. F. D. Bradbrooke has agreed to act as the new hon. secretary, and it is understood that the offices will be moved to 66, Victoria Street, London, S.W.1.

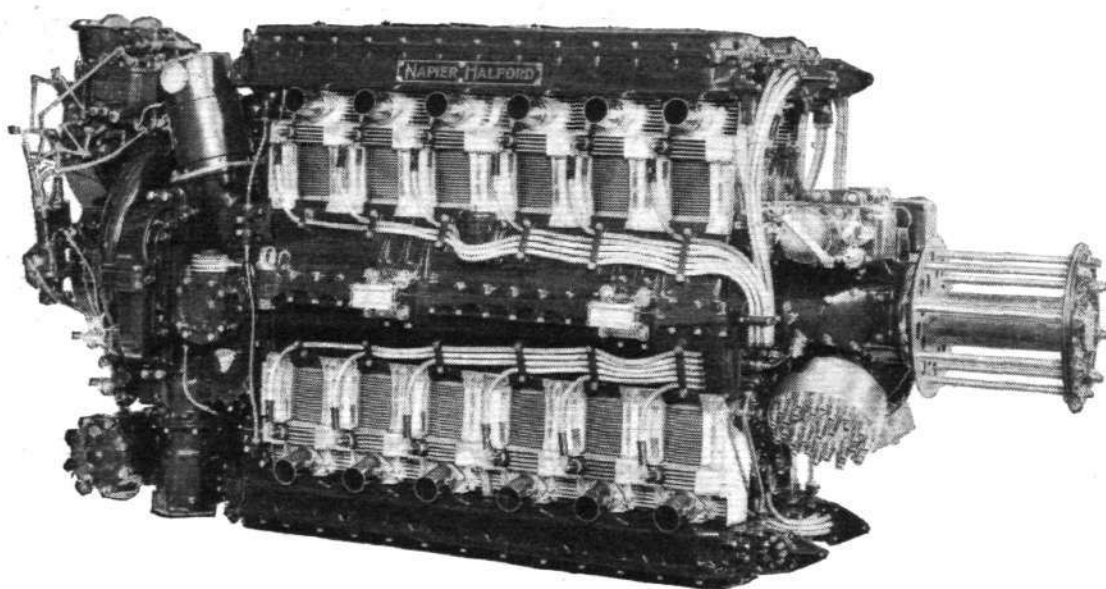
A Film to See

A new "interest" film, "Behind the Scenes," purports to show the private lives of stars of the motor racing and aviation world. This type of publicity is not everyone's meat, but most people will undoubtedly be interested in close-ups of Sir Malcolm Campbell, John Cobb, Freddie Dixon, and so on. It is in the aerial shots that the film's chief merit lies; with the help of that artist "George" Bulman, in a "Hart," the public will gain an idea of what it is like to be rolled or spun. Also, Miss Pauline Gower, who has taken up over 16,000 passengers, is shown at work with her partner and ground engineer, Miss Dorothy Spicer.

National League of Airmen

A "National League of Airmen" was founded last Monday, the object of which is to make the nation "air-minded." Membership of the League is divided into two classes, open to men and women. Members—who must be pilots who flew during the war for no fewer than 100 hours, or those not over 40 years of age who have completed 100 hours of solo flying, and Associate Members (non-flying) not under 16 years of age—must be British subjects. The first President of the League is Capt. Norman Macmillan, M.C., A.F.C., and its headquarters are at 39, Grosvenor Square, London. It is inevitable that the work of the new body must overlap that of the Air League of the British Empire, and thus a wastage of effort will arise. Also, apart from the question of ethics, the similarity of titles is likely to lead to confusion. However, the object is good, and we hope that the new body will succeed in creating interest in flying among a larger number of people.

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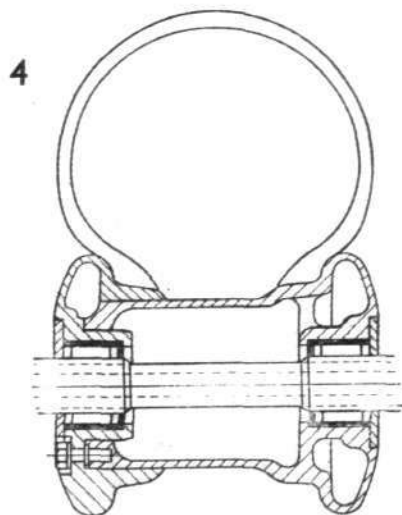
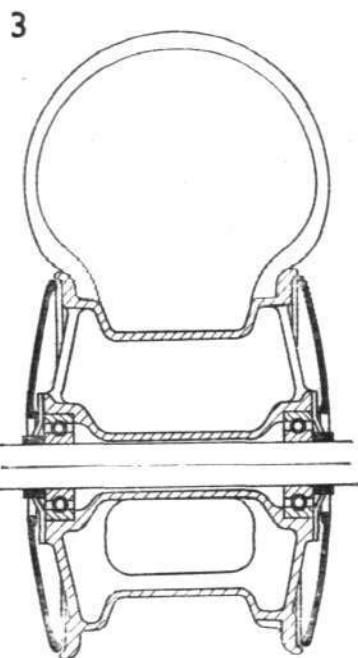
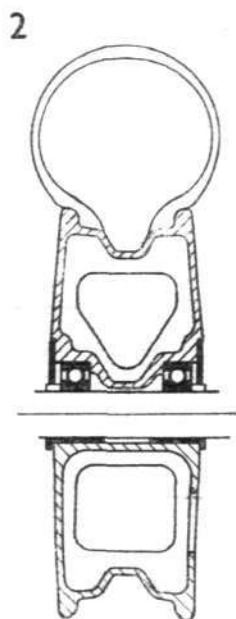
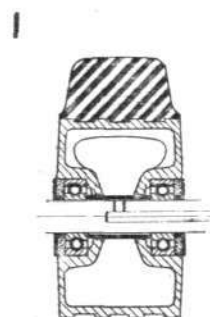
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EMPIRE AIR DAY

[3002] Empire Air Day is to be organised by the Air League again in 1935, and will be celebrated on Saturday, May 25. The National Council of Light Aeroplane Clubs has recommended it favourably to its members.

We are anxious this year to let as many members of the public as possible have a flight at civil aerodromes, and would like to appeal through your columns to "B" licence pilots to be kind enough to put their services at the disposal of their nearest clubs in order to help to take the public on first flights. Similarly, the Air League makes appeal to owner-pilots to ask them whether they can employ their machines on this occasion with the clubs. We are most anxious that every possible machine which can fly should take the air on Empire Air Day, and thus help those members of the public who have not yet flown to make their first trip.

Actual details will be settled later in conjunction with the clubs. Meanwhile, we would be happy to hear from any pilots who are willing to help at the Air League Headquarters, 19, Berkeley Street, London, W.1.

J. A. CHAMIER (Air Commodore),

Secretary-General, Air League of the British Empire.
London, W.1.

A NATIONAL SHOW—THE WIDE VIEW

[3003] Reverting to the matter of the Aero Show, I did not express any opinion for or against such an event in my previous letter [2999], but after reading the extracts from various opinions I am moved to state what I think as one who has religiously preached "The Gospel of the Air" since 1908.

I think the time is quite ripe for a real national, nay, even Empire, effort in this direction, and the narrow views expressed by certain manufacturers and operators should not be tolerated.

One must take the wide view and use plenty of imagination in such a project. Even now, nine-tenths of the population have never seen *close at hand* a real up-to-date air-liner, and still think in terms of crazy and flimsy crates. Why not assemble the very best and up-to-date machines under one roof, together with every accessory which goes to make flying safe for all?

Again, the Air Ministry is appealing for Reserve pilots; why not a first-class display of the types of planes which an embryo pilot will one day control? All good propaganda!

But, however good the show, it will be wasted unless *intensive efforts to advertise it are made*, and every assistance is given by all railway and transport concerns.

Also, if my previous suggestion of air lines and manufacturers giving a fly-past of similar machines to those which they are showing was carried out at scheduled times, it would impress the public; and they, after all, by means of their patronage as potential passengers, senders of goods and mails are the people who matter. When a manufacturer has sold a machine the matter is not closed, for the operator has still to find clients before that machine can pay for itself and help to purchase another. Hence the superior attitude is to be deprecated!

CHARLES A. RIPPON.

London, N.14.

FURTHER SHOW SUGGESTIONS

[3004] I must agree wholeheartedly with your advocacy of an aero show, and particularly with your correspondent who suggests a very ambitious scheme for a show at Olympia, this or next year. I would like to amplify the idea in the following manner:—

(1) That the show should be advertised for two or three months beforehand all over the country. This could be organised by asking the flying clubs and aviation firms to finance the advertising in their area. The cost would surely not be much more prohibitive than the money spent on advertising annual balls or dinners, etc., which these clubs often undertake.

(2) During the show the internal air-line operators might both advertise and supply the show with visitors by running frequent services daily at reduced rates.

(3) Similar excursions could be run from the Continent to

attract foreign visitors who are, after all, important potential buyers.

(4) That there should be a simultaneous display at Hendon on the lines of Sir Alan Cobham's Display. Competitions should be arranged at Olympia with flights at Hendon as prizes. I feel sure that this type of thing always goes down well with the public.

(5) That the show should be held in *late* September and kept open in the evenings, which are drawing in at that time of year. People and newspapers are all feeling a bit downhearted after returning to work from their holidays and will be glad to turn their attention to some such exhibition to keep themselves interested.

London, N.W.11.

"OPTIMIST."

YOUTH AND OPPORTUNITY

[3005] I have read with much interest the scheme for training young civilians as pilots for the Royal Air Force Reserve as outlined by you in the January 24 and earlier issues of *Flight*.

This is, no doubt, an excellent opportunity for any youth interested enough in aviation to obtain his "A" licence gratis, but surely you will agree with me that the existing 200 vacancies are entirely insufficient to provide the necessary chance for the thousands of young men in Britain who are waiting to prove their worth in the air and can't even get their feet off the ground.

The present-day cost for the necessary tuition for "A" and "B" licences is entirely too high. Apart from the above-mentioned scheme, no encouragement at all is given to the average youth to get into the air.

Take, for example, my own case. I am twenty years and three months of age, of good secondary education, and am physically fit in every way except for the fact that I wear spectacles to improve my sight. I have tried to obtain a short-service commission in the R.A.F., but the fact of my wearing glasses spoilt my chance. During the past twelve months I think I have offered my services, in any capacity, to all the aircraft companies in the country as well as to most airports. Perhaps you will, through the columns of *Flight*, bring to public notice the urgent need of material help to the youth of Britain that they may be given a chance of "winning their wings."

BRIAN MOORE.

Liverpool.

OLD OUNDELIANS

[3006] I have been asked to send a regular account of the doings of Old Oundelians connected with aviation—of whom there are quite a number—for inclusion in the school chronicle, "The Laxtonian," and I should be grateful if O.O.s in aviation would write to me at 21E, Sheffield Terrace, London, W.8, giving details of their jobs and work. J. C. V. K. WATSON.

London, W.8.

LETTERS IN BRIEF

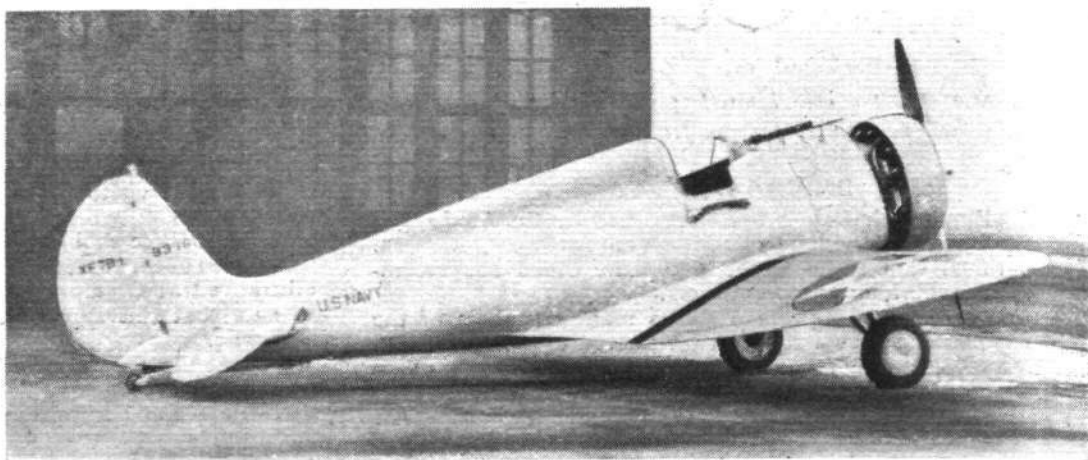
Writing on the subject of a paragraph in last week's issue dealing with the carrying of money while air-touring abroad, Mr. D. M. R. Mehta points out that travellers' cheques are obtainable in smaller units than £5. He states that the Midland Bank Ltd. and a few other important banks and travel agencies issue such cheques for a much smaller sum, viz., £2.

Mutual Finance, Ltd., of 201, Regent Street, London, W.1, writing with regard to the recent news of the formation of an aircraft hire-purchase company, state it cannot justly be claimed that the new concern are pioneers in this field. "We have for many years" (they state) "financed some millions of pounds' worth of motor cars and industrial plant, machinery and equipment. We were the first company to work out a factory finance plan for aircraft in conjunction with a prominent firm of manufacturers. Since that time we have worked out effective arrangements with other manufacturers, and also aircraft distributors. We have a very active aircraft department with a skilled personnel, and the benefits of an advisory board of prominent people in both the aircraft and insurance world."

UNITED STATES NAVY AIRCRAFT

*Some Remarkable
New Types now going
into Service : High-
speed Monoplane
Fighters : Modi-
fication of Existing
Types*

BY AN AMERICAN
CORRESPONDENT



An outstanding new monoplane fighter—the Boeing XF7B-1, with 550 h.p. "Wasp."

THERE is considerable interest in the adoption by the American navy of the many new types of monoplanes. Previously, the biplane has been held supreme as the standard carrier type. It is, of course, true that in the past a few experimental monoplanes of all types have been built, but they have never been furnished in large numbers.

Following the adoption of the monoplane by the Army Air Corps, the navy is, by all indications, putting into service some very smart and outstanding machines. While this sudden switch to monoplanes has not been on as great a scale as that of the army, it will be interesting to watch the future. Rather than make a hurried change, the navy is adopting a number of types modified by the fitting of retractile landing gear.

New Designations

All this has resulted in the redesignation of many aeroplanes and squadrons. These faster fighters, for instance, have caused the more conventional and slower biplanes to be termed bomber-fighters. Some of these latter have then been posted to the squadrons that formerly had two-seaters for dive-bombing duties. This, again, will give the navy a much greater fighter strength, as, while having a performance lower than that of the monoplane, the biplanes are still regarded as very efficient machines.

It has been no secret that the American navy has led the world as regards the number of aeroplanes that it has afloat with the fleet. Not including the few aircraft with the Asiatic fleet, there are based with units of the United States fleet a total of 575 machines. This figure takes in those on board the carriers, others on battleship and cruiser catapult duty, and the large flying boats of

the patrol wing. It is the ultimate intention of the navy to have at least a thousand sea-borne aircraft.

Before going into details of the various new and standard-type machines, a clarification of the naval designation helps one to understand those models. All naval aircraft are divided into classes according to their mission. In cases where more than one mission is performed the first letter of the designation indicates the primary mission, while the second letter indicates the secondary mission.

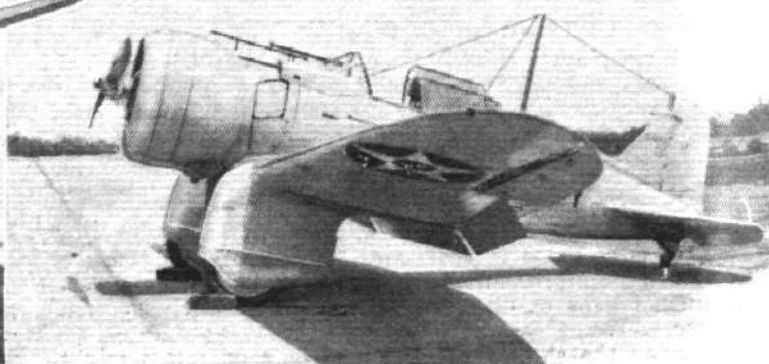
In this system of designation, F stands for Fighter; B, Bomber; O, Observation; S, Scouting; P, Patrol; R, Transport; J, Utility; N, Training; T, Torpedo; and H, Ambulance. Hence a combination of letters such as BF would indicate a bomber-fighter. This is further carried out by a series model number and the manufacturers' designation letter. Similarly, letters are assigned to the manufacturers: B for Boeing; C, Curtiss; D, Douglas; E, Bellanca; F, Grumman; G, Great Lakes; H, Hall; J, Berliner-Joyce; K, Keystone; L, Loening; M, Martin; N, Naval Aircraft Factory; P, Pitcairn; R, Ford; S, Sikorsky; T, Northrop; U, Vought; Y, Consolidated.

Type Indications

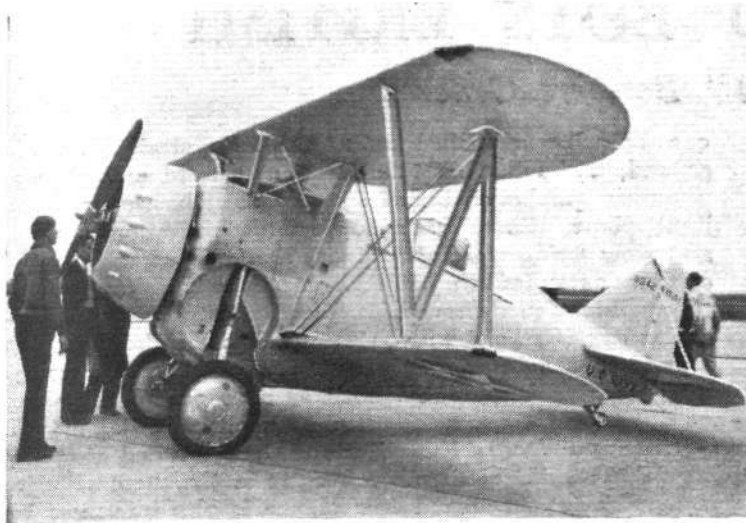
Thus, in a combination of the above letters, a BFC-1 would indicate a bomber-fighter, Curtiss make, and the first modification. A second bomber-fighter built by that company would be a BF2C-1, while successive modifications of that aeroplane would be BF2C-2, BF2C-3, etc., until a third or fourth model was constructed. A knowledge of this designation allows a complete understanding of these naval aircraft, as they are rarely referred to other than by such a method. An X before the designation of



A remarkable resemblance is borne by the Curtiss XF13C-1 to certain American "private-owner" types.



Ultra-modern in appearance, the Northrop XFT-1 is to be still further developed.



Strange to British eyes, these Grummans have very high performances. The single-seater has a 700 h.p., two-row "Whirlwind" and the two-seater a "Cyclone" of similar power. Note how the undercarriage retracts into the fuselage.

any naval aeroplane signifies that it is on the experimental list, and until it passes the required tests, it is not adopted for production. Ordinarily, some time is required before a machine is finally accepted.

Most outstanding of the machines to be reviewed are the new monoplane fighters. Of these, a great deal of interest is being taken in the Boeing XF7B-1. This single-seater fighter (illustrated in the heading) is an all-metal low-wing machine with a retractile landing gear that folds up flush with the bottom of the wing. In reality, it is the prototype of the army's P-29. A sliding cockpit cover encloses the pilot and greatly adds to his comfort at high speeds.

Flaps and Slots

As with all new machines, very few of the details are released until they have been in service for one year. Fitted with the Pratt and Whitney "Wasp" SR-1340-30 550-horse-power engine, the machine has a cruising speed well over the 200-mile-an-hour mark. A feature of these aeroplanes is that they are equipped with flaps and slots on the wings. The dimensions are identical with those of the army P-26 type. At the time of writing, the machine has gone back to the factory for modifications which will probably add a few miles per hour to the speed. In one test the XF7B-1 was seen to do a shallow dive on half-throttle from 8,000 feet to right over the field. There it was whipped over in a tight vertical bank while travelling at a speed of at least 300 miles an hour at the bottom of the dive.

Like the former machine, the Northrop XFT-1 is still under test. Great secrecy surrounds this single-seater, which, in appearance, looks like a baby brother to Frank Hawks' famed *Sky Chief*. It is also a low-wing all-metal monoplane, and it cruises well over 200 miles an hour. It has not been possible to obtain further details other than that it is fitted with the Wright two-row "Whirlwind" R-1510 fourteen-cylinder 700-h.p. engine. Like other Northrop machines it has "pants" that encase the entire landing gear, which is not of the retractile type. Built as a carrier fighter, it has a machine-gun mounting on each side. Both guns are inside the fuselage, the barrel openings extending to the front of the engine cowling. Cooling of the guns is effected by a part of the barrels being in the open space between the cowling and the fuselage. This machine, also, has been returned to the factory for further modifications, and it is said it will reappear with a retractile landing gear as well as with a new tail and cockpit.

The Curtiss contribution consists of two monoplane models. Their F12C-1 is a two-seater fighter high-wing monoplane. This wing is swept back, and the crew is enclosed by a sliding cockpit cover. A retractile undercarriage folds into the sides of the fuselage, and the

machine has a very high performance. It is powered with Wright "Cyclone" R-1510 engine of 700 h.p.

Second of the Curtiss machines is the XF13C-1 single-seater fighter. This is another high-wing monoplane and is reported to be faster than the Northrop XFT-1. It is also powered with the Wright two-row "Whirlwind" R-1510 fourteen-cylinder 700 h.p. engine, which is claimed to be very silent. Its cruising speed is far beyond the 200 m.p.h. Features of this aeroplane also comprise sliding cockpit covers and a retractile undercarriage that folds into the fuselage. In recent tests the XF13C-1 made a full-throttle power dive and zoomed across the flying field at a speed of nearly 400 miles an hour. In spite of the high rate of speed at which it was travelling, very little noise originated from the engine or airscrew.

Of an entirely different design, the new Sikorsky amphibian fighter is a two-seater monoplane. The designation of this machine is SS-1. It has a boat-like hull with a monoplane gull-wing mounted on top, while two wing-tip floats prevent the wing from coming in contact with the water. A Pratt and Whitney "Wasp" SD-1 550 h.p. engine, mounted as a tractor, provides the motive power. This is hung above the wing directly over the centre of the fuselage, and is well above the spray of water when landings and take-offs are to be made in rough seas. The wheels are drawn up into the sides of the boat-hull and completely streamline it. A sliding cockpit cover is also provided by the design. It is rumoured that this machine did not pass the required tests.

For Carrier Squadrons

A standard machine now posted to carrier squadron duty, the Grumman FF-1 is a two-seater fighter of the biplane type. It was the first to appear with the type of undercarriage that draws up flush into the side of the fuselage. The crew is enclosed by a sliding cockpit cover, and the machine is powered with the Wright "Cyclone" SR-1820-F 700 h.p. engine. The whole machine is very strongly constructed, and, due to the wide gap between the upper and lower wings, it is very stable. While not regarded as exceptionally fast, the FF-1, fully loaded, does 197 m.p.h. at 6,000 ft. The metal fuselage is of monocoque construction. Equipment includes flotation gear for a forced landing on the water and deck landing gear for action with aircraft carriers. Armament comprises two free Brownings for the observer and a fixed gun for the pilot.

A later Grumman model, the XF2F-1 single-seater version, has just been delivered to the Naval Air Service for test. It is very deep-bellied, and powered with the fourteen-cylinder Wright R-1510 700 h.p. engine. Supplied also with a retractile landing gear and sliding cockpit covers, fifty-four of these machines have recently been ordered.

(To be concluded next week.)

NEW ZEALAND BUYS BRITISH

Twelve "Vildebeest" Bombers Ordered

LAST Thursday Sir James Parr, High Commissioner for New Zealand, together with other New Zealand officials, witnessed a demonstration flight of the twelve "Vildebeest" bombers which the New Zealand Government has ordered from Vickers (Aviation) Ltd.

Even allowing for the fact that the machine was "flying light," Mr. J. Summers, Vickers' chief test pilot, gave a very remarkable demonstration of the climb and manoeuvrability of the "Vildebeest." Taking off in what

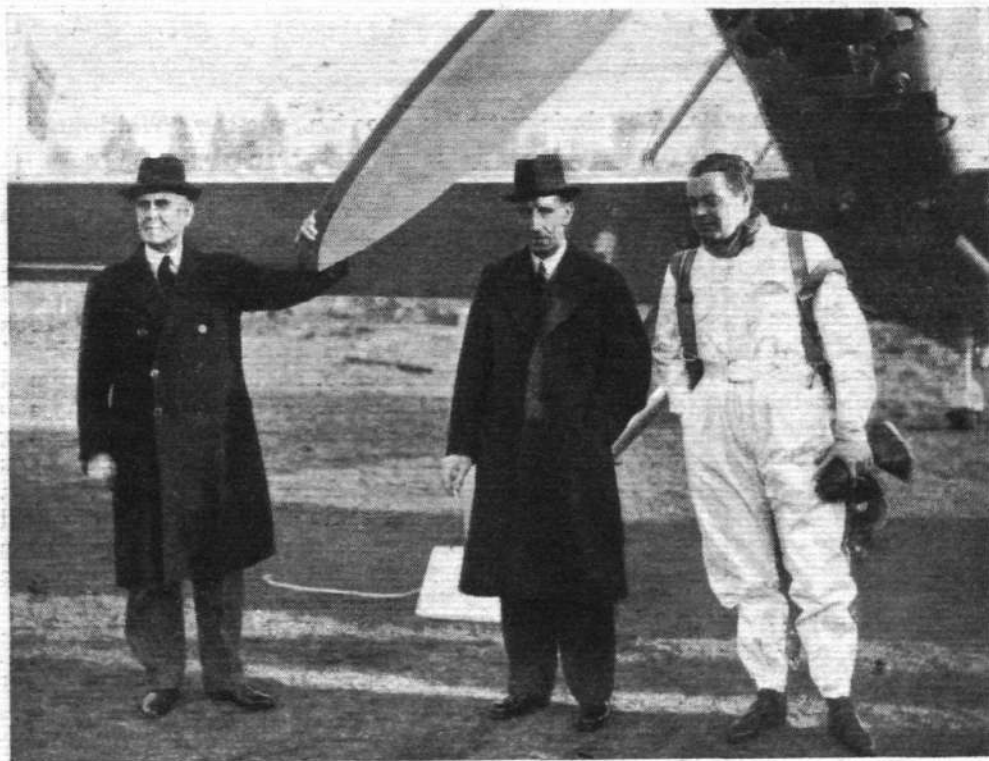
can only be described as a half-loop straight off the ground, and following this with an upward half-roll, Mr. Summers gambolled about the sky as if he were flying a light plane. Some very convincing exhibitions of fast and slow flying were also given, and the words of appreciation extended to Mr. Summers by Sir James were thoroughly well deserved.

Readers of *Flight* will be aware that the "Vildebeest" is used in considerable numbers by the Royal Air Force. The machine is available both as a torpedoplane and as

a bomber. For her coastal defence New Zealand has decided that the bomber version is the more suitable, and this choice is also influenced by the fact that a considerably extended range can be obtained, as an auxiliary petrol tank can be slung under the fuselage in the position which would otherwise be occupied by the torpedo. The range at a cruising speed of 122 m.p.h. is then 1,255 miles.

Few aircraft firms have succeeded in obtaining as good a ratio of gross weight to tare weight as Vickers. In the "Vildebeest" the gross weight is 8,500 lb. and the tare weight 4,229 lb., so that the machine carries as a normal load and not in the form of an overload the equivalent of a few pounds more than its own weight. This is a remarkable ratio, and testifies to the skill brought to bear in the structural design.

With a Bristol "Pegasus" series I.M.3 engine of 620 h.p., the "Vildebeest" has a maximum speed at an altitude of 5,000ft. to 6,500ft. of 140 m.p.h. The landing speed with full load is less than 60 m.p.h. The machine is also available as a seaplane, when the gross weight is 9,000 lb. and the tare weight 4,780 lb.



Sir James Parr, High Commissioner for New Zealand, with (centre) Sir Robert McLean, chairman of Vickers (Aviation) Ltd., and Mr. J. Summers, the company's chief test pilot. (*Flight* photograph.)

THE AIRSPEED AERONAUTICAL COLLEGE

Interesting courses for those who wish to enter the aviation industry are now available at the Airspeed Aeronautical College, which has been established at the company's works at Portsmouth Airport. The scheme of instruction was evolved as the company found great difficulty in obtaining qualified personnel for their own purposes, and they realised that their experience would also be the experience of similar firms.

The three years' course is divided into two portions. It starts with basic practical workshop experience, and while obtaining this experience the student is given time to study the industry from every aspect, so that at the end of the initial period of eighteen months he will be able to decide which of the three advanced courses he wishes to take.

If he decides on advanced aeronautical engineering he will remain in the company's factory, where he will be taught everything to do with the design and construction of aircraft, will spend a considerable time in the costing and planning offices, and will be given the opportunity of gaining experience with aero engine manufacturers.

Should he, however, prefer the sales, supply and service side of the business, he will undergo training in the company's office, receiving instruction in book-keeping and commercial law, and will then join the sales, supply and service organisation of the company, either in England or overseas. The third branch he may take up is that of aircraft operational organisation, wherein he will also be trained in book-keeping and commercial law, after which he will be instructed in aerodrome management and development, and traffic management with an operating aviation line in England or overseas.

The fee for the complete course of three years is 250 guineas.

CROYDON WIRELESS AND PHYSICAL SOCIETY

"Instruments Used in the Navigation of Aircraft" formed the subject of a lecture given at a recent meeting of the Croydon Wireless and Physical Society by Mr. C. J. Hayward.

The lecturer explained that the advance in design of navigating instruments and the fact that they were now used in conjunction with wireless telephony or telegraphy had resulted in a very high standard of efficiency of navigation being obtained, and had contributed largely to increased safety, particularly when flying at night or in conditions of poor visibility. He then went on to give a very instructive review of modern instruments.

Visitors are heartily welcomed at any of the Society's meetings. Particulars as to membership may be obtained from the hon. secretary, Mr. H. T. P. Gee, Staple House, 51 and 52, Chancery Lane, London, W.C. 2.

B.I.E.T. STUDENTS' SUCCESS

That students of the British Institute of Engineering Technology had, with one exception, gained 100 per cent. success in various professional examinations was pointed out by Mr. J. J. Cleaver (Advisory Director) at the seventh annual dinner, held recently in London.

The Institute, the address of which is Shakespeare House, 29-31, Oxford Street, London, W.1, has an aeronautical department with courses of instruction in all aeronautical, navigational and meteorological subjects, and offers coaching for the examinations of the Royal Aeronautical Society (A.F.R.Ae.S. and A.M.I.Ae.E.), for the Air Ministry's First and Second-class Air Navigators' Certificates, Ground Engineers' Licences, Pilots' Licences, etc.

HINDERING AIR TRAFFIC

The "Prohibited Area" Nuisance : A Plea for International Co-operation in Removing Obstacles which are Becoming a Source of Obstruction and Danger to Users of the Air

THERE are far too many areas over which aircraft are not allowed to fly. These prohibited areas have long been a source of annoyance, and danger in many cases, to aircraft travelling between various countries, and numbers of bodies are doing all they can to get some of these restrictions removed.

The Civil Aviation Section of the London Chamber of Commerce has brought the matter before the Air Transport Committee of the International Chamber of Commerce, and, largely because of the continued complaints which the air touring department of the Automobile Association is receiving from pilots, the Air Ministry has brought the matter before the International Commission for Air Navigation; but, nevertheless, the latest bulletin of that body—generally known as the I.C.A.N.—contains details of a number of new areas.

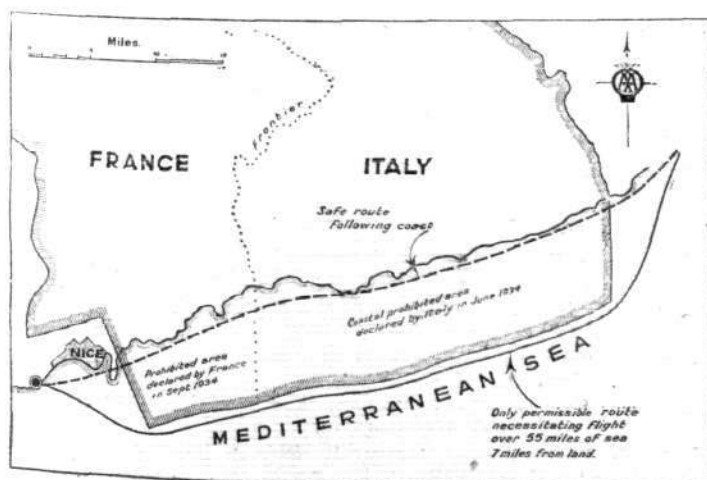
As I pointed out in my articles describing my recent flight to Baghdad, many of these areas are a positive danger to single-engined aeroplanes, and, therefore, make the ordinary routes between England and Egypt far more hazardous than they need otherwise be.

Safety Areas

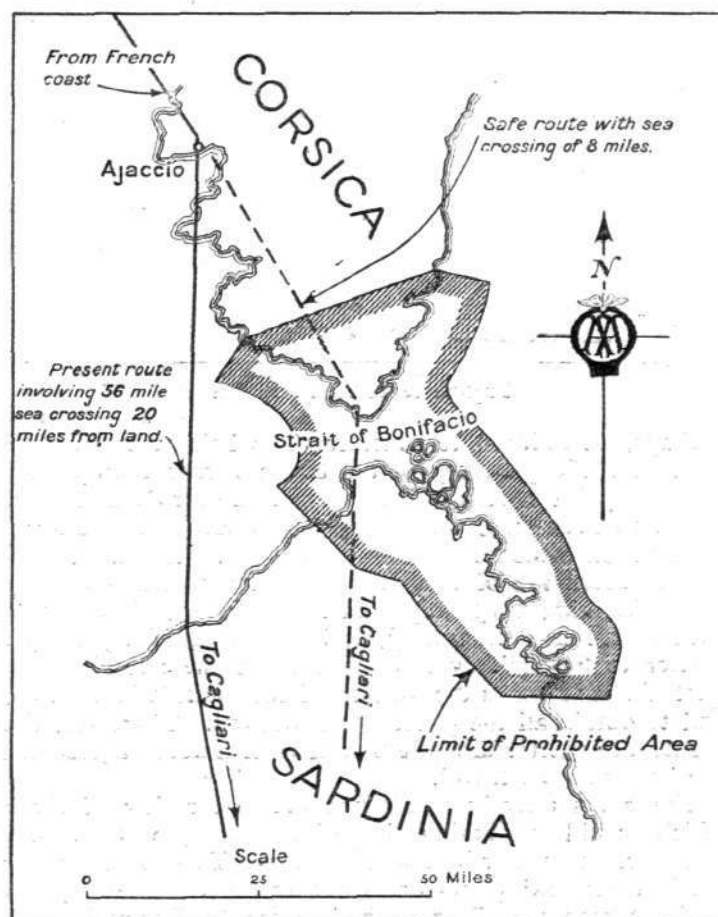
No one will cavil at any Government declaring an area closed to aircraft. That is their right, and they cannot be blamed for safeguarding their country's interests. We do it ourselves, but our prohibited areas are almost all far smaller than those of any other country and are, more often than not, merely safety areas surrounding explosive factories and places where, for their own sakes, aeroplane pilots must be prevented from the possibility of having an accident. In no case is it necessary to fly for long distances out over the sea in order to avoid any of our areas.

This, however, is certainly not the case with many of the areas in the Mediterranean. Take, for example, two new areas, both of them Italian. The first, which joins up with the French area off Monaco, results in aircraft having to fly over the sea, seven miles from the coast, for a distance of fifty-five miles. The second is an area enclosed in a circle of six miles diameter around Furbara railway station, which is on the coast north of Rome; this necessitates aircraft flying to that city having to make a detour inland over mountains 1,850 ft. high, or over twenty miles of sea at a distance of five miles from the coast.

Both these areas seriously affect the safety of the many



A Franco-Italian area, as shown on one of the maps referred to in this article.

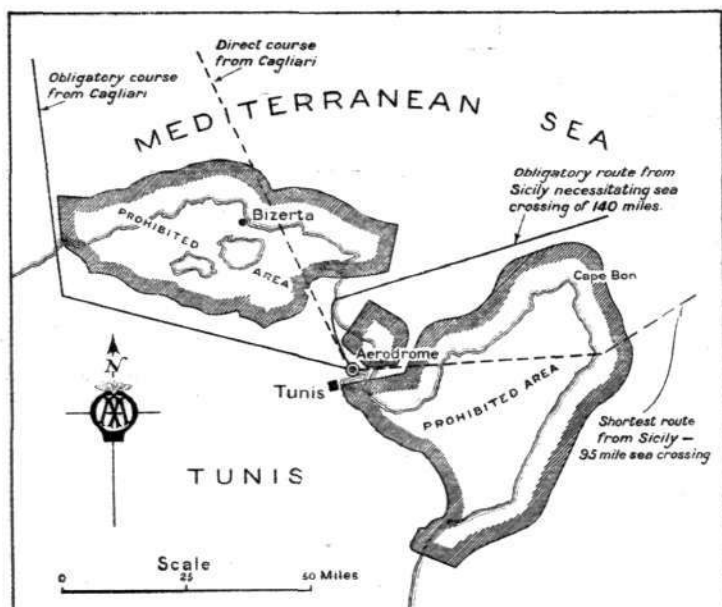


Another Franco-Italian "hindrance."

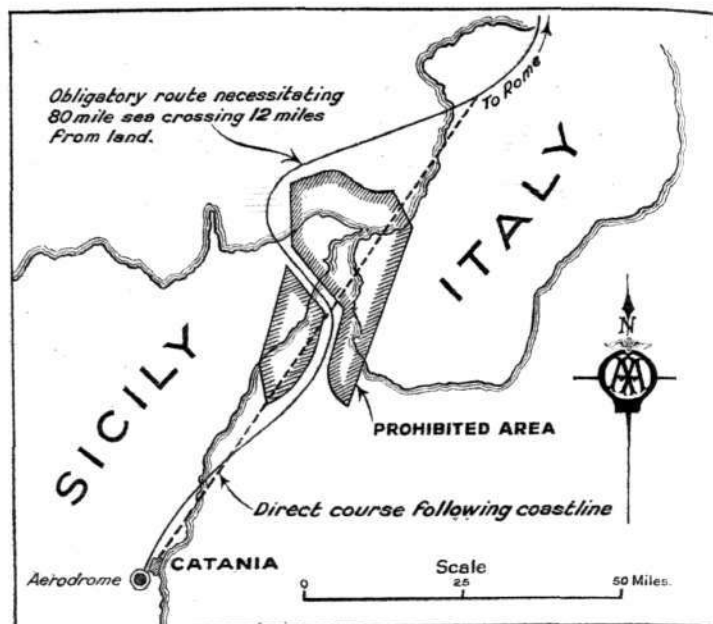
people who fly between England and Egypt *via* Italy. As a matter of fact, due to this sort of thing, coupled with the high cost of petrol and the delays which always occur on Italian aerodromes, a large proportion of those people now prefer to take the route which leads them from Marseille *via* Corsica and Sardinia to Tunis. Even there they are still incommoded, and the amount of sea over which they have to fly is very considerably increased because of prohibited areas. The Messina Straits is another place where the prohibited area means a sea crossing of eighty miles, twelve miles from land, whereas the direct crossing is but four miles across the water.

First is that area surrounding the Straits of Bonifacio, between the two islands; incidentally, the French will not allow anyone to land at Ajaccio, so the hop from Marseille is rather far for most private owners, especially when most of it is over water and bad country. This area forces aircraft out to sea and makes them fly over fifty miles of water instead of only eight miles which would be necessary if they could take the best route. Then come those French areas, one to the east of Tunis and the other around Bizerta, to the north-west. These endanger the traffic both from Sardinia and from Sicily. In the former case a considerable detour to the west is necessary, and in the latter the area to the east of the town makes aircraft fly more than ten miles from Cape Bon promontory, which increases the length of the sea crossing by forty-five miles.

The list of such areas as these is very large and is one which cries out for the attention of bodies like the I.C.A.N. Through such bodies foreign Governments may,



French areas in N. Africa



The Straits of Messina

perhaps, be induced to consider the whole matter in the light of the expediency of air traffic rather than purely from the point of view that someone in an aeroplane might, if he flew over those areas in perfect conditions, gain some information which he should not have. Actually, prohibited areas are of very little use in preventing anyone from obtaining photographs of fortifications. Nowadays, with infra-red photography, it is a comparatively simple matter to fly high over an area when there is sufficient mist about to make recognition of the aircraft impossible, and to obtain all the photographs desired. Therefore, the sooner the matter is made one of international agreement the better for air travel.

The areas already mentioned are but a few of those which could profitably be discussed. To take, for example, one nearer home—Cherbourg. To this port many English air taxi pilots are wont to go to fetch hurried business men travelling from America to England. The aerodrome lies right in the middle of a prohibited area, for the use of which special permission from the French Government must be obtained. The corridor for access to

this aerodrome lies to the south of the town, and this alone necessitates a large detour for those machines which fly from England; but that is not the worst of it by a long way, because the French demand that the aeroplane shall have cleared Customs before landing at Cherbourg, so most English machines go to Berck and then to Cherbourg, which means that they have to fly two or three times the distance they would have to do if they could go straight across the Channel and clear Customs at Cherbourg itself.

The Automobile Association, whose air touring department works in conjunction with that of the Royal Aero Club, is more directly concerned with this problem than anyone else, and has prepared a large number of maps showing these areas. A few of these maps are reproduced in this article. It is to be hoped that the representations of this body may, together with those of others, be the means whereby we may get something done which will mitigate both the inconvenience and danger which these large areas cause to users of the air routes.

C. N. C.

G.A.P.A.N. Branch in Southampton?

THE possibility of forming a branch of the Guild of Air Pilots and Navigators in the Southampton area was discussed at a meeting held at the South Western Hotel, Southampton, on January 28. About twenty-eight pilots were present, and Mr. L. F. Payne took the chair, while the Court of the Guild was represented by Flt. Lt. P. W. S. Bulman, Mr. R. C. Preston, and Mr. Lawrence Wingfield, the Clerk.

Mr. Wingfield, in explaining the aims and objects of the Guild, dealt at length with the attitude recently adopted by it on such questions as those of the Second-class Air Navigator's Examination and the recent Notice to Airmen No. 109, which requires all pilots to obtain blind-flying qualifications. The attitude of the Guild, he stated, was that blind-flying experi-

ence was necessary for air line work, but it was not immediately necessary for instructors, and that the Guild had asked the Air Ministry to convene a conference at the earliest possible moment to define the qualifications of an air-line and taxi pilot, and with a view to facilitating the efforts of air-line pilots to obtain blind-flying experience through the medium of the Air Force Reserve.

A discussion followed, in which numerous questions were dealt with by the members of the Court present, and points of doubt as to the policy of the Guild cleared up.

A unanimous resolution was passed that it was desirable to form a branch of the Guild in the Southampton area, and Mr. L. F. Payne volunteered to act as honorary secretary.

Diary of Forthcoming Events

Club Secretaries and others are invited to send particulars of important fixtures for inclusion in this list.

- Feb. 7. "The England-Australia Air Race." Lecture by Mr. C. W. A. Scott, at the Queen's Hall, London.
- Feb. 8. "Aviation in India," by J. A. Shilliday, at Royal Society of Arts.
- Feb. 8. "Ice Formation in Carburettors." R.Ae.S. Lecture by Mr. L. P. Coombes.
- Feb. 13. Film, "Seadromes," at R.U.S.I.
- Feb. 15. Annual Aviation Ball, Bristol and Wessex Aeroplane Club, Grand Spar Hotel, Clifton.
- Feb. 15. D.H. Technical School Annual Ball.
- Mar. 1. Annual Dance. Leicestershire Aero Club, Palais de Danse, Leicester.
- Mar. 1. "Fuels for Aircraft Engines." R.Ae.S. Lecture by Mr. E. L. Bass.

- Mar. 5. "Problems of Cold Presswork." Joint R.Ae.S. and Inst. A.E. Lecture by Dr. H. Gough and Dr. Desch.
- Mar. 15. "New Developments of the Autogiro." R.Ae.S. Lecture by Senor Juan de la Cierva.
- Mar. 29. "Piloting Commercial Aircraft." R.Ae.S. Lecture by Squ. Ldr. H. G. Brackley.
- Mar. 29. Annual Dinner. Norfolk and Norwich Aero Club, Mousehold Aerodrome.
- Apr. 12. "Commercial Aircraft." R.Ae.S. Lecture by Capt. G. de Havilland.
- June 1. Brooklands "At Home."
- Sept. 6, 7. King's Cup Air Race.

THE ROYAL AIR FORCE

SERVICE NOTES AND NEWS



AIR MINISTRY ANNOUNCEMENTS

MOVE OF No. 13 (ARMY CO-OPERATION) SQUADRON

No. 13 (Army Co-operation) Squadron will move from Netheravon to Old Sarum. The move is to be completed by April 6, 1935.

FOREIGN OFFICER WITH THE R.A.F.

Capt. Arimori, of the Japanese Military Air Service, has been attached to the Home Aircraft Depot, Henlow, Bedfordshire, from January 21, 1935, to March 30, 1935, to study the organisation of and work carried out by that unit.

FLEET AIR ARM UNITS

The following squadrons embarked in H.M. ships *Courageous* and *Furious* on January 3 and 5, 1935, respectively, from the stations shown:—

H.M.S. *Courageous*:—No. 800 (F.F.) Squadron from Upavon, No. 810 (F.T.B.) Squadron from Gosport, No. 821 (F.S.R.) Squadron from Upavon, and No. 823 (F.S.R.) Squadron from Donibristle.

H.M.S. *Furious*:—No. 801 (F.F.) Squadron from Upavon, No. 811 (F.T.B.) Squadron from Gosport, and No. 822 (F.S.R.) Squadron from Manston.

THE "SEAGULL V"

A Supermarine "Seagull V" amphibian has been installed on H.M.S. *Nelson*, and will be launched by a catapult. This type has already been adopted by the Royal Australian Air Force for use on the Australian seaplane-carrier, *Albatross*, which has no flying deck and, as yet, no catapult.

"TIGER MOTH II"

The official name of the communication aeroplane with "Gipsy Major" engine, dashboards arranged for blind-flying and fixed portions of night-flying and blind-flying equipment, is "Tiger Moth II." The "Tiger Moth" aeroplane with "Gipsy III" engine, at present in service, will accordingly be known in future as "Tiger Moth I."

FLIGHT CADETSHIPS FOR AIRCRAFT APPRENTICES

Aircraft Apprentices L. F. Cooper, J. G. Fraser and C. D. Milne, from No. 1 School of Technical Training (Apprentices), Halton, and Aircraft Apprentice S. W. B. Menaul, from the Electrical and Wireless School, Cranwell, have been selected for cadetships at the Royal Air Force College, Cranwell, on the result of the examinations held on completion of their three years' training as aircraft apprentices. The "Viscount Wakefield" Scholarships, valued at £75 each, have been awarded to Flight Cadet D. W. Burt (on the result of the recent competitive examination for entry into the Royal Air Force College), and to Flight Cadet C. D. Milne. The "Hyde-Thomson Memorial Prize," valued at £29, has been awarded to Flight Cadet S. W. B. Menaul.

R.A.F. MESS KIT

Royal Air Force mess kit has been modified. The rank is now shown by lace on the cuffs, the cut of the mess jacket has been slightly altered, and heavier facings provided. A white waistcoat with three buttons will be worn with mess kit in future. The cost of making the changes varies with the rank of the officer. For a Pilot Officer the cost is 10s.; for a Marshal of the R.A.F. it is £5 2s. 6d. For a Flight Lieutenant it is 31s.

ST. GEORGE'S DAY

The Royal Society of St. George have this year (as in previous years) been granted authority to supply emblems to the Royal Air Force for wear on St. George's Day (April 23). The Society is prepared to supply to order:—(i) Roses, red and white (linen) at 17s. 6d. per gross (approximately 14d. each), unsold roses not being returnable. (ii) Paper replicas of the old English Flag (the Admiral's Flag) at 6s. per 1,000, unsold flags being returnable. It is customary to wear a red and a white rose together.

MILDENHALL AERODROME—OBSTRUCTION

Road and building construction will be in progress for a period of approximately three months along the south-western and southern boundary of Mildenhall aerodrome to a depth of approximately 200 yards from the aerodrome boundary. The obstruction will not be marked by day but the limits of the landing area will be marked by red lamps at night.

AIR BOMBING AND FISHERY

The Southern Sea Fisheries District Committee has protested against the decision of the Air Ministry to establish an air gunnery and air bombing range off Chesil Beach. The Air Council has sent a letter to the committee regretting the necessity for further encroaching upon the fisheries, but stating that after an exhaustive survey of all possible sites it had reached the conclusion that Chesil Beach met the requirements while involving the least interference with other interests.

THE EXPANSION PROGRAMME

The following special measures will be taken to meet the increased requirements in personnel consequent upon the decision of H.M. Government to expand the Air Force:—

(i) *Extension of service of certain short service officers from 5 to 6 years.*—Extension of service in the rank of flying officer to complete six years on the active list, followed by four years in the reserve, may be granted to short service officers commissioned prior to April 1, 1932 (and therefore entered for five years active list followed by four years' reserve service) who volunteer and are recommended therefor. The gratuity in respect of the sixth year of active list service will be £100.

(ii) *Extension of service of medium service officers.*—Extension of service to complete eleven years on the active list, followed by four years in the reserve, may be granted to medium service officers due to transfer to reserve prior to April 1, 1937, who volunteer and are recommended therefor. The gratuity in respect of the eleventh year of active list service will be £100.

(iii) *Extension of service of squadron leaders and flight lieutenants of the general duties branch.*—The service of a limited number of officers of the ranks of squadron leader and flight lieutenant will be extended to ages 48 and 45 respectively.

EXTENSIONS OF SERVICE

The undermentioned squadron leaders and flight lieutenants have been selected for retention on the active list to ages 48 and 45 respectively:—

Squadron Leaders:—Ernest Lionel Ardley, Cecil Ferdinand Chinery, Ian Cullen, M.B.E., A.F.C., William Bourne Everton, Geoffrey Henry Hall, A.F.C., Bernard Edward Harrison, A.F.C., Edgar Harry Hooper, Denis Osmond Mulholland, A.F.C., Alan Fitz Roy Somerset-Leeke, O.B.E., Arnold Samuel Thompson. *Flight Lieutenants:*—David Stewart Allan, Cuthbert Caumont Bazell, Reginald Morville Davy, William Frederick Dry, p.s.a., Dudley Lloyd Evans, M.C., D.F.C., Harold Everett Falkner, John Malcolm Glaisher, D.F.C., Charles Austin Horn, Campbell Alexander Hoy, M.C., Donald Robert Mitchell, M.B.E., John Mary Joseph Charles James Ivan Rock de Besombes, Charles Robert Strudwick, Christopher Tom Walkington.

FIFTEEN HUNDRED BOYS WANTED

The Air Ministry announces:—

The expansion of the Royal Air Force by forty-one Squadrons, mainly for home defence purposes, necessitates a greatly increased intake of personnel during the next four years. A large proportion of this increase will consist of well-educated boys, no fewer than 1,500 of whom will be required during the next twelve months—more than twice the number taken annually before the expansion began. The large majority will be entered as aircraft apprentices, but substantial numbers will also be required for entry as boy entrants and apprentice clerks. No previous experience is required, but candidates must be physically fit and of good education.

The aircraft apprentices are trained for three years in the special technical schools of the Royal Air Force to become fitters, instrument makers and wireless operator mechanics. These are the most important trades in the Air Force, and the highly skilled aircraftmen employed on these duties receive the highest rates paid in the service. The age limits are 15-17.

Boy entrants are taught the skilled trades of armourer, photo-

grapher and wireless operator. Their rates of pay and conditions of service are also good. The age limits are 15½-17½.

The openings for apprentice clerks provide a valuable opportunity to boys who prefer administrative to technical duties. Apprentice clerks are given a thorough training in clerical duties and also receive favourable rates of pay. The age limits are 15½-17½.

ROYAL AIR FORCE GAZETTE

London Gazette, January 29, 1935

General Duties Branch

A. V.-M. C. L. Courtney, C.B., C.B.E., D.S.O., is appointed Director of Operations and Intelligence and Deputy Chief of the Air Staff, Air Ministry, vice A.-M. Sir E. R. Ludlow-Hewitt, K.C.B., C.M.G., D.S.O., M.C. (Jan. 26).

The following are granted short service commissions as Acting Pilot Officers on probation with effect from and with seny. of Jan. 16:—H. L. I. Brown, G. J. Bush, H. D. Cooke, D. Davies, R. T. F. Gates, W. I. Hammond, J. E. Jacobs, J. C. McG. Lunn, R. E. X. Mack, R. B. Nuthall, G. Packe, V. A. Pope, W. Townson, R. C. Waddell.

The following Flying Officers are promoted to the rank of Flight Lieutenant (Dec. 28, 1934):—G. N. Warrington, C. E. Morse.

P/O. C. G. Lott is promoted to the rank of Flying Officer with effect from Jan. 10, and with seny. of Oct. 9, 1934.

The following Pilot Officers are promoted to the rank of Flying Officer (Jan. 15):—W. D. Disbrey, L. G. Levis, G. E. Peacock.

Group Capt. S. Smith, D.S.O., A.F.C., is placed on the half-pay list, scale A (Jan. 26). Wing Cdr. T. V. Lister is placed on the half-pay list, scale A (Jan. 18). Sqn. Ldr. M. Moore, O.B.E., is placed on the half-pay list, scale A, from Jan. 6 to 19, inclusive. Flt. Lt. C. J. Collingwood, D.F.C., is placed on the half-pay list, scale A (Dec. 25, 1934). Flt. Lt. V. Harris is placed on the half-pay list, scale A, from Jan. 14 to Jan. 20 inclusive. Flt. Lt. J. D. I. Hardman, D.F.C., is placed on the half-pay list, scale A, from Dec. 18, 1934, to Jan. 20, inclusive. Sqn. Ldr. A. R. Mackenzie is placed on the retired list (Jan. 28). F/O. H. D. Raynham resigns his permanent commission (Jan. 19).

Stores Branch

F/O. R. B. Fleming is promoted to the rank of Flight Lieutenant (Jan. 10).

Medical Branch

The following are granted short service commissions as Flying Officers on probation for three years on the active list, with effect from Jan. 7 and with seny. of the dates stated:—J. W. Patrick, M.B., B.Ch., D.P.H., A. W. Smith, M.B., B.S. (Jan. 7, 1934); J. S. Wilson, M.B., Ch.B. (Jan. 16, 1934); C. A. Lewis, M.R.C.S., L.R.C.P. (March 7, 1934); R. G. James, M.R.C.S., L.R.C.P. (July 7, 1934); G. H. Stuart, M.B., B.S., M.R.C.S., L.R.C.P. (Oct. 29, 1934); W. G. S. Roberts, M.R.C.S., L.R.C.P. (Jan. 7).

Flt. Lt. C. G. J. Nicolls, M.B., B.Ch., is promoted to the rank of Squadron Leader (Jan. 28). Flt. Lt. T. W. Wilson, L.R.C.P.

Full information regarding methods of entry and conditions of service in each of these classes can be obtained from the Air Ministry (Apprentices Department), Gwydyr House, Whitehall, London, S.W.1. Details of the vacancies which will be offered at the individual examinations, to be held at local centres throughout the country during the year, will be issued later.

and S., is placed on the retired list on account of ill-health (Jan. 25). Flt. Lt. R. L. Raymond, M.B., Ch.M., F.R.C.S.(E), is transferred to the Reserve, class D (Jan. 25).

Dental Branch

A. Maben, L.D.S., is granted a non-permanent commission as a Flying Officer with effect from and with seny. of Jan. 7.

ROYAL AIR FORCE RESERVE

Reserve of Air Force Officers General Duties Branch

The following Flying Officers relinquish their commissions on completion of service:—A. J. Plummer (Nov. 27, 1934); T. B. Byrne (Nov. 28, 1934).

Flt. Lt. F. C. Wilkinson relinquishes his commission on completion of service and is permitted to retain his rank (Nov. 11, 1934).

The following Flying Officers relinquish their commissions on completion of service and are permitted to retain their rank:—S. F. Woods (July 13, 1934); L. R. Tait-Cox (Jan. 26).

F/O. M. L. Goodeve-Docker relinquishes his commission on account of ill-health (Jan. 30). F/O. R. C. H. Tripp resigns his commission (Jan. 18).

SPECIAL RESERVE

General Duties Branch

F/O. J. B. R. Brooke resigns his commission (June 30, 1934).

AUXILIARY AIR FORCE

General Duties Branch

No. 603 (CITY OF EDINBURGH) (BOMBER) SQUADRON.—C. A. G. Thomson is granted a commission as Pilot Officer (Jan. 9).

No. 605 (COUNTY OF WARWICK) (BOMBER) SQUADRON.—The following Pilot Officers are promoted to the rank of Flying Officer:—M. T. Avent, R. G. Grant-Ferris (Jan. 29).

TERRITORIAL ARMY

ROYAL ENGINEERS

Anti-Aircraft Searchlight Companies

319TH (C. OF ABERDEEN) A.A.S. Coy.—A. M. Scott (late Cadet, Merchiston Castle Sch. Contgt., Jun. Div., O.T.C.) to be Sec. Lt. (Jan. 30).

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

General Duties Branch

Group Captain.—A. Corbett-Wilson, to Station Headquarters, Boscombe Down, 26.1.35—to command vice Group Capt. S. Smith, D.S.O., A.F.C.

Squadron Leaders.—C. E. Maitland, D.F.C., A.F.C., to R.A.F. Base, Singapore, 19.1.35—for Engineer duties. W. H. Poole, A.F.C., M.M., to Superintendent of R.A.F. Reserve, Hendon, 17.1.35—for flying (flying instructor) duties vice Sqn. Ldr. G. C. Gardiner, D.S.O., D.F.C. G. S. Shaw, to No. 18 (B) Squadron, Upper Heyford, 21.1.35—to command vice Sqn. Ldr. T. C. Luke, M.C. H. G. White, to No. 501 (City of Bristol) (B) Squadron, Filton, 21.1.35—to command vice Sqn. Ldr. W. Elliott, D.F.C. O. E. Carter, A.F.C., to D.T.D. and D.S.R. Dept. of A.M.R.D., Air Ministry, 21.1.35, vice Sqn. Ldr. E. J. D. Townesend. E. G. Hilton, D.F.C., A.F.C., to Aeroplane and Armament Experimental Establishment, Martlesham Heath, 19.1.35—for flying duties with Performance Testing Section vice Sqn. Ldr. C. E. Maitland, D.F.C., A.F.C. J. W. Baker, M.C., D.F.C., to No. 33 (B) Squadron, Upper Heyford, 26.1.35—to command vice Sqn. Ldr. H. S. P. Walmsley, M.C., D.F.C. J. C. Brooke, D.S.C., to No. 2 Flying Training School, Digby, 24.1.35—for Engineer duties vice Flt. Lt. E. S. Steddy. W. F. Dickson, D.S.O., O.B.E., A.F.C., to No. 25 (F) Squadron, Hawkinge, 28.1.35—to command vice Sqn. Ldr. A. L. Paxton, D.F.C. C. H. Potts, D.S.M., to Headquarters, Air Defence of Great Britain, Uxbridge, 28.1.35—for Equipment (Engineer) Staff duties vice Sqn. Ldr. H. G. White. A. H. Stradling, O.B.E., to Headquarters, Inland Area, Stanmore, 28.1.35—for Personnel Staff duties vice Sqn. Ldr. C. L. King. R. J. Divers, M.B.E., to No. 3 (Indian) Wing Headquarters, Quetta, 23.1.35—for Air Staff duties vice Sqn. Ldr. J. MacG. Fairweather, D.F.C. J. Oliver, A.F.C., to Aircraft Depot, India, Karachi, 23.1.35—for administrative duties vice Sqn. Ldr. L. O. Brown, D.S.O., A.F.C. A. L. A. Perry-Keene, to Headquarters, R.A.F. India, New Delhi, 23.1.35—for Armament duties vice Flt. Lt. J. G. Franks.

Flight Lieutenants.—J. N. D. Anderson, to R.A.F. Base, Kai Tak, 19.1.35. A. E. Dark, to Headquarters, Far East Command, Singapore, 19.1.35. J. R. H. Pott, to No. 32 (F) Squadron, Biggin Hill,

21.1.35. W. A. Thompson, to Home Aircraft Depot, Henlow, 21.1.35. P. F. G. Bradley, to No. 207 (B) Squadron, Bircham Newton, 22.1.35. R. L. Sweeny, to Record Office, Ruislip, 18.1.35. S. H. Ware, to No. 142 (B) Squadron, Andover, 22.1.35. R. D. McE. Hart, to No. 1 School of Technical Training (Apprentices), Halton, 28.1.35. J. W. Hutchins, to Dept. of Air Member for Research and Development, Air Ministry, 28.1.35. T. W. Hodgson, to No. 5 (Army Co-operation) Squadron, Quetta, India, 23.1.35. E. J. L. Hope, A.F.C., to Headquarters, R.A.F., Iraq, Hinaidi, 23.1.35.

Flying Officers.—R. H. Harris, to Air Armament School, Eastchurch, 21.1.35. J. G. G. Moore, to No. 205 (F.B.) Squadron, Singapore, 19.1.35. G. F. A. Skelton, to Aeroplane and Armament Experimental Establishment, Martlesham Heath, 21.1.35. R. L. Bradford, to Headquarters, R.A.F., Iraq, 1.1.35. I. G. Ross, to No. 24 (Communications) Squadron, Hendon, 23.1.35. R. H. Younghusband, to Aircraft Depot, India, Karachi, 30.12.34. L. M. Hooper, to Station Headquarters, Manston, 21.1.35.

Pilot Officers.—G. R. Howie, to No. 70 (B.T.) Squadron, Hinaidi, Iraq, 23.1.35. C. G. Lott, to Headquarters, R.A.F., Iraq, Hinaidi, 23.1.35. G. C. Tomlinson, to Headquarters, R.A.F., Iraq, Hinaidi, 23.1.35.

Stores Branch

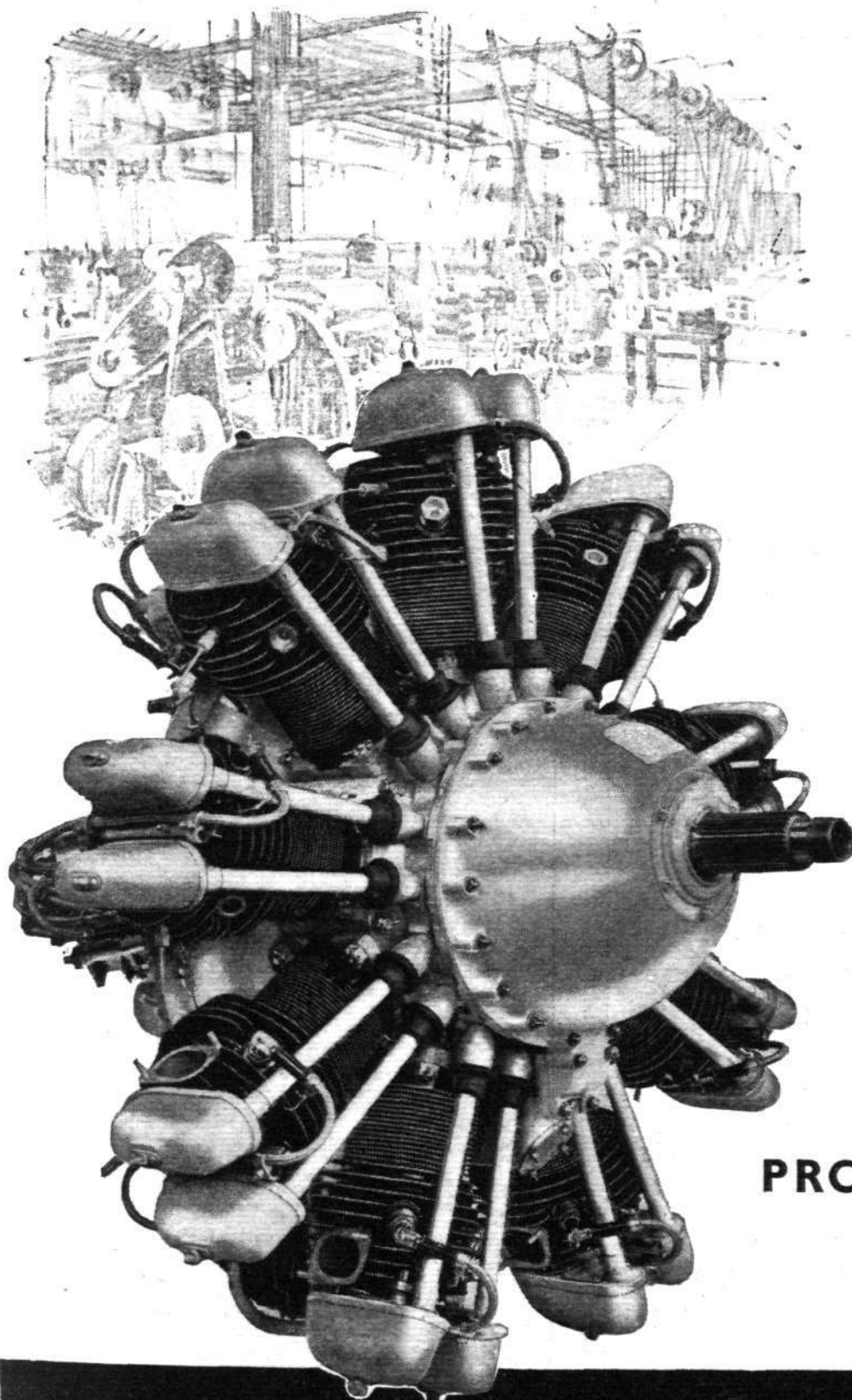
Flying Officers.—W. Eccles, to Aircraft Depot, India, Karachi, 23.1.35. H. Wood, M.B.E., to Aircraft Depot, India, Karachi, 23.1.35.

Accountant Branch

Flight Lieutenants.—R. D. Pratt, to No. 84 (B) Squadron, Shaibah, Iraq, 12.1.35. F. M. Hall, to 203 (F.B.) Squadron, Basrah, Iraq, 23.1.35.

Medical Branch

Flight Lieutenants.—C. A. Rumball, to No. 4 Flying Training School, Abu Sueir, Egypt, 4.1.35. E. Thompson, to No. 1 School of Technical Training (Apprentices), Halton, 24.1.35. G. H. J. Williams, to No. 2 Armament Training Camp, North Coates Fitties, 18.1.35. J. F. Ziegler, to R.A.F. Depot, Middle East, Aboukir, 4.1.35.



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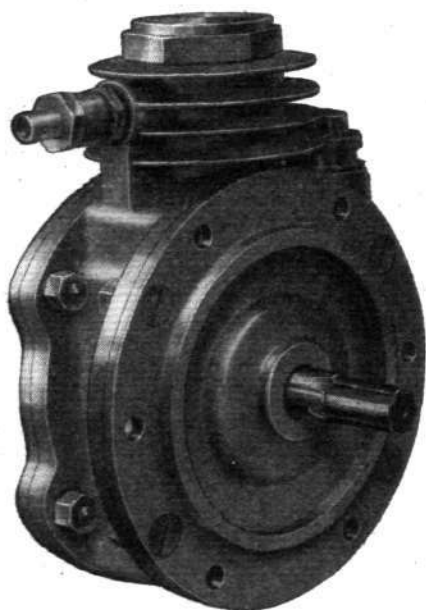
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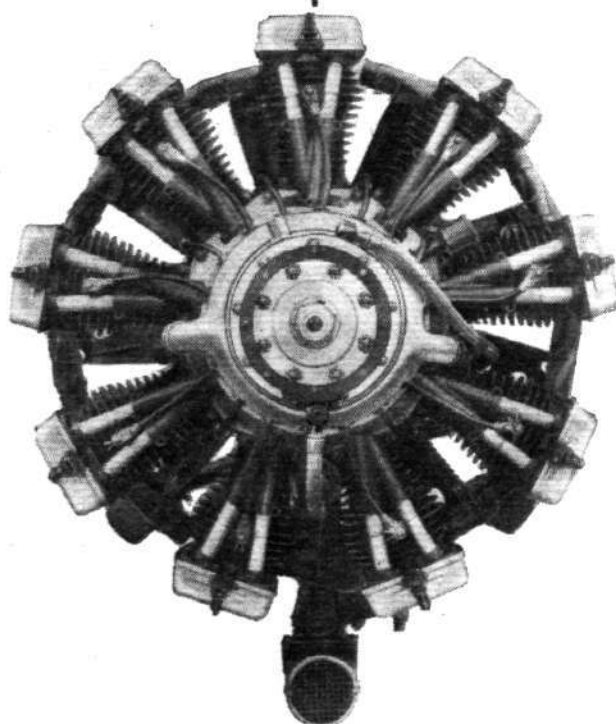
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PRIVATE FLYING

LORD SEMPILL, A.F.C., A.F.R.Ae.S.,
CONTINUES THE STORY OF HIS
FLIGHT TO AUSTRALIA

MY enforced stay at Calcutta gave me an opportunity of learning many things at first hand, but, interesting as it was from this point of view, I was glad when the repair to my oil tank was completed and the tank re-installed. The time, however, was well spent as, had I been content with anything less than a thorough rewelding, the trouble might have developed to serious proportions at a spot where no adequate facilities were available. The delay had also enabled me to get the machine properly cleaned and the engine tuned up, so that it was with confidence that I left Calcutta on the next stage of my journey through Burma and Siam, where flying conditions can be the reverse of pleasant.

My first objective was Akyab, which was reached after flying over the mouth of the Ganges and skirting the Bay of Bengal, *via* Chittagong. The Delta of the Ganges is a remarkable sight from the air, with its great expanse and hundreds of channels. Passing down the west coast of Burma I arrived at Akyab after some four hours' flying, and found the aerodrome to be quite a good and level landing ground. I was pressed to stay to lunch, but was anxious not to risk arriving at Rangoon after dark. Taking on some fuel, I therefore continued my flight, which lay over a considerable distance of dense jungle. One could distinguish some beautiful trees and flowers, but could see nothing of the animals—tigers, pigs and stags—which abound there.

A Wonderful Temple

AFTER leaving the jungle and crossing a range of hills into the valley of the Irrawaddy, one flies for miles over rice fields and uninteresting country until Rangoon is sighted. Rangoon presents a fine view from the air, being well laid out with avenues of lovely red trees. The great Buddhist temple, the Shwe Dagon pagoda, which is richly gilded—the topmost portion is said to be of solid gold encrusted with precious stones—makes a fine landmark. This temple, which was built over 2,500 years ago, is famed as being the largest Buddhist shrine in the world.

Reaching Rangoon in good time, I refuelled my "Puss Moth" in readiness for an early take-off in the morning, and set off for the hotel which accommodates the air-line passengers. This I found to be over twelve miles from the aerodrome, a state of affairs which is far from satisfactory. In due course, no doubt, proper hotels will be available at all main-route aerodromes, but the lack of these facilities, which is far too common, calls for more immediate attention if the Empire routes are to build up and preserve a reputation for comfort and convenience.

There is no doubt that the value of air transport, apart from the trunk air lines, is being brought home to the commercial interests in Burma. The Irrawaddy Flotilla Company, which has carried on a river transport business for over sixty years, has decided that its future activities shall embrace the air. With this in view the company is arranging to form an organisation to be known as the Irrawaddy Flotilla and Airways, Ltd., with headquarters at Rangoon. The object in view is to broaden their business by undertaking the transport of passengers and goods by land, water and air throughout Burma and the Malay States. To prove the practicability of machines of this

On the Way to Singapore

type, a "Fox Moth" on floats has been purchased and trial flights to the chief Burmese centres arranged for. It is hoped shortly to begin a regular service from Rangoon to Moulmein—a port, with access to the Gulf of Martaban, from which a great deal of tin is exported—and also to centres in the oilfields. The nature of the country, which has many waterways, including the vast delta of the Irrawaddy, should make the seaplane a most useful medium of transport.

Having arrived at Rangoon in good weather, I was anxious to push on in the hope that favourable conditions would hold until I got to Singapore. After spending the night at Rangoon, I left on the next stage to Victoria Point, which I reached after about six hours' flying. I found I had to face a head-wind on this flight, though, taking a course well out to sea, one found the adverse effect less noticeable.

Having been somewhat delayed for this reason, I found myself in rather a quandary, for it was cut of the question to reach Singapore without refuelling, and as Penang is fifty minutes' ahead of the time at Victoria Point and nearly four hundred miles distant, I could not hope to reach it before dark.

At Victoria Point

AS there are no lights at Penang and the aerodrome at Alor Star was unfit for landing, I decided to stay at Victoria Point the night and make Singapore the next day. I found the aerodrome here quite good, and, being just within the southern boundary of Burma, it comes under the control of the D.C.A. of India. It is in charge of Mr. Russell, who was originally O/C. the R.A.F. station here, and he has been in Burma since the war. He is also looking after the interests of a large rubber estate.

The aerodrome, which is well cared for, is bounded on one side by high hills and seems to keep in better shape during the monsoons than do others in this part of the world. Although I was not at first too pleased at being held up, I spent a very interesting few hours with Russell, who was only too glad to have the company of a fellow-countryman, as there are but a few white men in that particular district. He put me up in a very nice one-storeyed house which he had built. This was constructed on "stilts," which left a large space under the building which is utilised for storage purposes. It was most comfortable, and as it is close to the jungle and one hears the sounds of many wild animals during the night, the form of construction gives one a welcome sense of security.

Far from Home

I FOUND Mr. Russell very eager to talk, and he told me he hoped to be coming home in the spring. Meeting such men, one realises the difficulties which are encountered by those who are looking after British interests in the out-stations of the Empire and how much we at home owe to those who keep up our Imperial prestige in other lands. Apart from his other duties, Mr. Russell looks after the fuelling arrangements of the company who are supplying the petrol and oil for my machine.

My flight through Burma had been very pleasant, particularly along the seaboard between Rangoon and Victoria Point, where the sandy beaches looked so attractive that I was tempted to land for a bathe. Unfortunately, the good weather was not to last, and my next stage was to be a very trying one.

FROM THE CLUBS

Events and Activity at the Clubs and Schools

WITNEY AND OXFORD

For the week ended February 2 the total flying was 6 hr. 35 min. Continuous strong winds have held up solo flying. One new member, Mr. A. B. Pant, of Oxford, has joined.

ABERDEEN

The spell of blizzards prevented the Dyce school machines from leaving the hangars last week, but the social committee of the Dyce Aero Club have been busy organising future events. Another dance will be held in the clubhouse on Friday, March 1; cinema shows of aviation interest will be shown from time to time.

MIDLAND

High winds on three days prevented any flying at Castle Bromwich, the times for the week ended January 31 being: dual, 5.25; solo, 4.05. During the month of January a total of sixty-three hours was flown.

The following new members have recently joined:—Messrs. E. J. Humphrey, R. Miles, G. Dutton and J. Morgan. The club has just taken delivery of another "Major Moth."

KENT

Flying time for week ended February 3 totalled fourteen hours. Three new members joined—Miss Wild, Mrs. Short and Mrs. Troughton.

The new Miles "Hawk" arrived from Reading on Friday. The club fleet now consists of one "Moth" ("Gipsy I") and two "Hawks." The new machine is fitted with blind flying equipment, and a number of members intend to take the instrument flying course.

NORTHAMPTONSHIRE

New members for last week included Miss Y. Bluett, Miss M. Shaw and Mr. C. Abraham Thomas. On Sunday a landing competition was opened, which, unfortunately, had to be stopped owing to bad weather. However, the best of the entries among those who flew was Mr. David Lloyd.

Members are looking forward to seeing a large number of private owners at the aerodrome on February 16 for the beagle meet and dance.

INSURANCE FLYING

The Insurance Flying Club was not as active as usual during January, owing to the poor weather experienced, but members had put in eighteen hours at the end of the month.

Miss M. A. Longstaffe qualified for her "A" licence, and Mr. A. Foxall is about to complete his tests. Messrs. R. C. Cox and A. Swainston joined as ordinary flying members. There are still vacancies in the club for new members. All communications should be addressed to the secretary, 54, Leadenhall Street, E.C.3.

NEWCASTLE-UPON-TYNE

During January the total number of hours flown was eighty-eight, eight of which were on blind flying instruction. Four machines were in service.

The club's annual dinner-dance was held at Tilley's Barras Bridge Assembly Rooms, Newcastle-upon-Tyne, on Tuesday evening, January 29, and there were about 180 guests present, including the Lord Mayor, Lady Mayoress and Sheriff of Newcastle-upon-Tyne, Councillor and Mrs. A. D. Russell, Councillor R. Embleton, Sqn. Ldr. and Mrs. W. L. Runciman and Col. Sir Joseph Reed and party.

HAMPSHIRE

The total flying hours for the month of January were 101 hr. 5 min., with five club machines in action at Eastleigh. Five new members have joined, and two members, Messrs. H. Zettersten and E. H. Banfield, made first solos. Mr. H. Zettersten qualified for his "A" licence.

CINQUE PORTS

General activity last week was marred by snow and wind, and flying times, dual and solo, totalled only six hours. Due to thick weather at Croydon, the aerodrome was besieged by Continental air liners, as many as seven being seen on one morning. Amongst the pilots the club entertained was Mr. Parmentier. Mr. Davis is now back from his holiday.

HANWORTH

In view of the improved weather conditions, flying hours at Hanworth have improved considerably during the past week.

The flying rates have now been reduced, and in consequence thereof the membership is increasing rapidly.

Mr. A. H. Tweddle, in his Miles "Martlett," and Mr. E. D. Spratt, in his Miles "Hawk," left Hanworth last Wednesday for Grindelwald, Switzerland, for the winter sports and to join a party of members of Hanworth who are already there.

HATFIELD

The flying time was 17 hr. 10 min. at the London Aeroplane Club last week. The total number of flying hours for the month was 156, as compared with 145 last year. New members were Messrs. J. D. Stewart and A. S. Bell.

Mr. N. K. Dubash was successful in his cross-country flight for his "B" licence, and Mr. Thomson completed the tests for his "A" licence.

The membership of the R.A.F. Flying Club is slowly but surely increasing, even during the winter months, when one hardly expects so much interest to be taken in flying.

LEICESTERSHIRE

Speaking at the annual meeting of the Leicestershire Aero Club, the president, Mr. W. Lindsay Everard, M.P., visualised the possibility that the new airport at Braunstone might become an important centre, and urged the necessity for pushing ahead rapidly. Arrangements, he said, had already been made with Provincial Airways in connection with their projected line to Hull.

During the past three years, he said, the club membership had dropped from 700 to 500, and he appealed to people in the county to "rally round." The flying time for 1934 had dropped by 300 hours.

NORFOLK AND NORWICH

Mr. Alan Stuart successfully completed his first solo flight last week. He was the winner of the scholarship presented by Mr. Alan Colman.

Following Mr. J. Collier's successfully completed blind flying course at Reading, Mr. Alan Colman has very generously offered to equip one of the club machines with two turn and bank indicators, and the club intends to take immediate advantage of Mr. Colman's kindness.

At 8 p.m. on Wednesday, February 13, a debate will be held in the clubhouse on the motion "That Record-breaking Flights are Still Justifiable."

On Friday, February 22, at 8.30 p.m., another supper-dance will be held in the clubhouse.



TO AID EMPIRE DEVELOPMENT. The first D.H. "Dragon Rapide" to bear Australian registration letters, the machine illustrated will be used to inspect arrangements for the supply of Shell products in Australia and to collect data applying to their use. (Flight photograph.)

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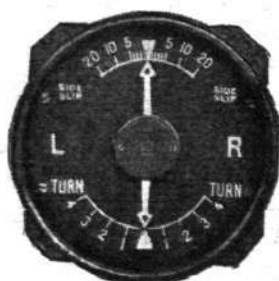
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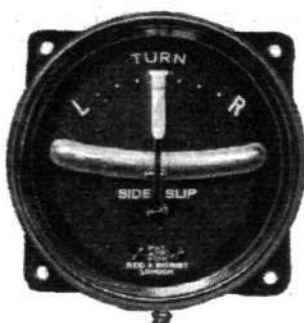
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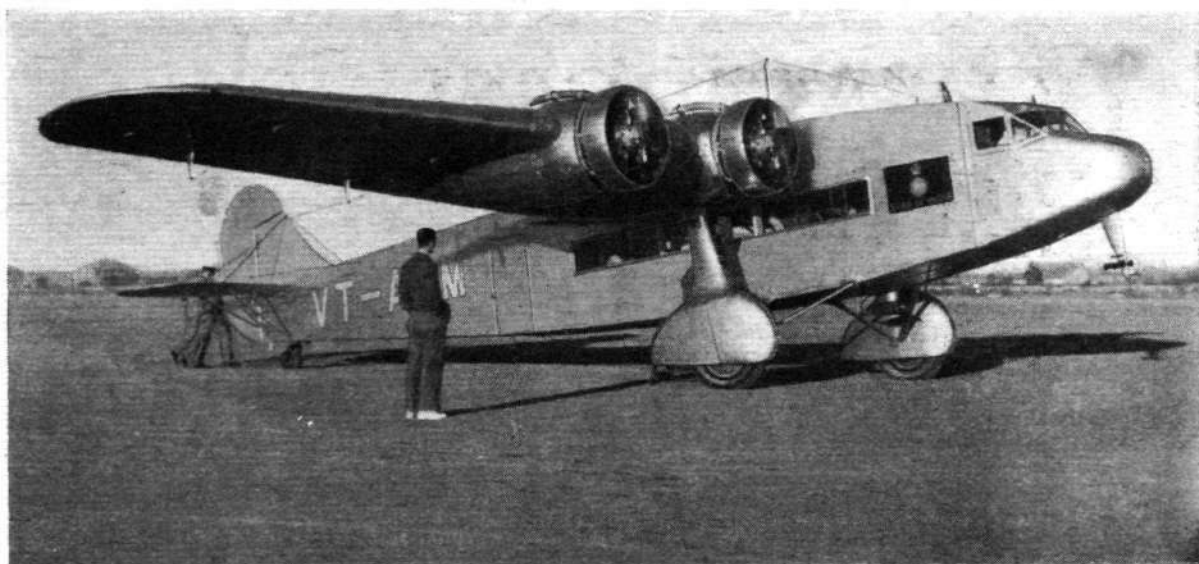
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CAMBRIDGE

Flying time at Marshalls Flying School and the Cambridge Aero Club for week ended February 1 was: dual, 18 hr. 5 min.; and solo, 6 hr. 50 min. New members joining included Messrs. Akroyd, Mackay, Wilberforce and Braithwaite. A first solo was carried out by Mr. Woolley on Wednesday.

Many members had their first experience of landing on snow during the week, but thick fog for two days curtailed activities.

Only four members of the Civil Aviation Service Corps arrived on Sunday. The majority found the snowdrifts on the London Road too much for them.

BROOKLANDS

New members at Brooklands last week included Mr. Miller and Mr. Watson. Mr. Graves and Mrs. Oakley completed their "A" tests, and Mr. McGuffie flew solo. Mr. J. B. Molony, of the College of Aeronautical Engineering, has taken his "A" and "C" ground engineer's licences.

Last Sunday the annual general meeting of the club was held. This was very well attended, and afterwards members were entertained by a cinema show of aviation films taken at home and on the various fronts during the War. Capt. Mackenzie, having returned from Blackpool, where he had been detained by bad weather, delivered Col. Smith Barry's "Puss Moth" to the latter's private aerodrome at Devizes. A privately chartered "Puss Moth" also flew two passengers to Bristol on Thursday, and Messrs. Ken Waller and Leslie Cliff, of the Cinque Ports Club, arrived for lunch.

The College of Aeronautical Engineering Rugby team played the R.A.F., Hendon, at Brooklands, losing by 6 points to 12.

HAMBLE

By way of starting the New Year it is interesting to survey the list of the awards made during 1934 at Air Service Training.

The Blind Flying Trophy, which was presented by Sqn. Ldr. Burge for competition among pupils, was won by Mr. O. G. E. Roberts, who is at present taking the long commercial course.

The first award of the Navigation Trophy has been made to Mr. K. M. Cass, R.A.F.O. This trophy, which takes the form of a silver globe, was presented by Mr. W. D. Campbell, an ex-pupil of the school, and is awarded annually to the A.S.T. student obtaining the highest marks in the examination for the second-class navigator's licence. Mr. Cass obtained 89 per cent. of the total marks.

During 1934 six students took the examination for the P.M.G.'s air operating licence, and three sat for the telephony licence, all being successful. The Wireless Trophy, presented by the Marconi Co. to be awarded to the student obtaining the highest aggregate of marks in any one year, was won by Mr. A. M. Wood, of No. 4 Wireless Course. Mr. Wood's creditable performance was the more interesting as he is one of the youngest holders of a wireless licence, and he has obtained an appointment with Olley Air Service.

The most important development in the wireless department of A.S.T. during 1934 was the installation of a complete modern short-wave station, working on the 20- and 40-metre bands. This station was completed in November, since when a large number of contacts have been made with different parts of the world. This, in conjunction with practical experience gained in the wireless-equipped Avro Five, gives A.S.T. pupils a chance of becoming competent operators before leaving the school.

NOTTINGHAM

Flying for the month of January totalled twenty-nine hours, a good figure considering the poor weather and strong gales blowing. Three machines of the Leicester club have been flown over each Sunday by members who wished to partake of a good lunch, and Mr. Wynn, in his "Puss Moth," flew to Heston and returned in exceptionally sticky weather.

Twenty-five members went over to Leicester to the opening dance of the new clubhouse, returning after a very enjoyable evening. A Badminton tournament took place last Sunday at the airport against Nottingham Drill Hall.

Yet another commercial aviation concern appreciates the advantage of a Midlands aerodrome—Patterson Air Traders.

The present instructor of the club is Capt. L. W. Hall, who is fully qualified in every form of aviation, and is also a director of the two companies operating the airport. Mr. Roxborough is to be the assistant instructor to the club in March.

The Royal Aero Club Meeting

At the meeting of the General Council of Associated Light Aeroplane Clubs on January 30, Col. Sir Joseph Reed was elected Vice-chairman for 1935, and both the Cotswold Aero Club and the Wiltshire Flying Club were elected to the General Council. It was recommended that R.A.F. support should be given at the official opening of Braunstone (Leicester), Woolsington (Newcastle), and Shoreham (Brighton) airports.

The Council also dealt with compulsory third-party insurance, air conventions relating to collisions and salvage, and medical examinations for "A" licences.

New Irish School

Within the next month a new company, Dublin Air Ferries, Ltd., should be at work. Lady Heath and her husband, Mr. G. A. R. Williams, are the directors, and they have already taken over Kildonan aerodrome—which is some four miles north of Dublin—with the business of its previous owners, Everson Flying Services, the only charter company in the I.F.S.

The new company has, therefore, a school with nearly a hundred pupils, three instructional "Moths" ("Gipsy I") and a "Fox Moth." One of the "Moths" is being fitted out for blind-flying instruction. There is a staff of seven at Kildonan, including Mr. W. J. Scott, and a ground engineers' class has been started.

The Easter Meeting at Sutton Bank

From April 20 to 23, inclusive, the Yorkshire Gliding Club will be holding its Easter meeting at Sutton Bank, near Thirsk, Yorkshire, and it is hoped that, with the co-operation of visiting pilots, informal competitions may be arranged; the club is offering silver trophies to be won outright.

Members of other clubs are invited to attend, and all visitors will be made honorary associate members for the period. A short period flying membership can be obtained by approved pilots.

Intending visitors should write, stating the accommodation required, to the Hon. Secretary, Mr. A. Cox, "Overdale," Boston Avenue, Kirkstall, Leeds.

COMMERCIAL AVIATION

— AIRLINES — AIRPORTS —

MANHATTAN'S OWN "AIRPORT"

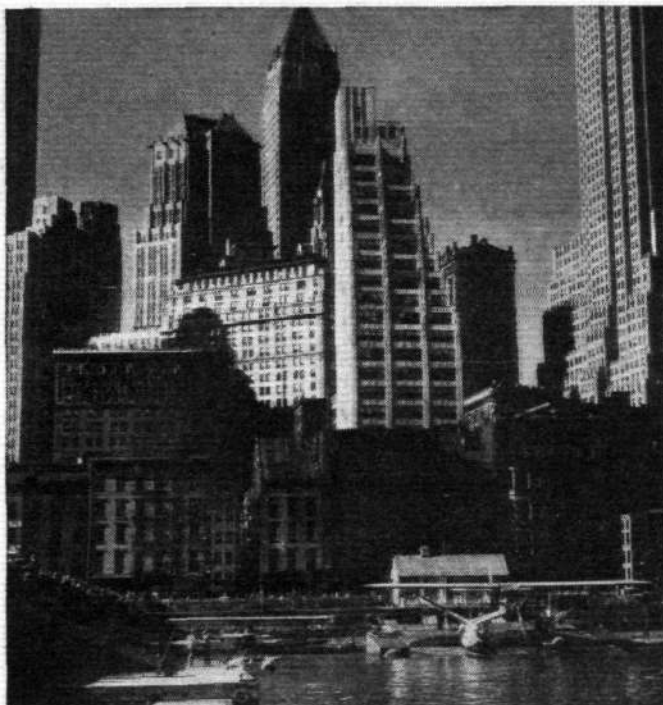
DURING the summer a seaplane station was opened at the foot of Wall Street and the East River, which bids fair to alter the whole conception of airline terminals for New York and other waterfront cities. It is known as the "Wall Street Sky Port" and incorporates a number of novel and interesting features in the way of seaplane facilities.

The base is designed to serve as a terminal for two distinct classes of water flying: organised air transport operations with relatively large (12 to 18 passenger) seaplanes, and small, privately owned seaplanes and amphibians, for which the parking problem has been acute.

In the former category would logically fall air line operations, such as those between New York, Philadelphia and Boston; commuting services to the suburban waterfront communities; shuttle services to Floyd Bennett Field and the Newark Airport; and last, but by no means least from the standpoint of profit, sight-seeing flights around Manhattan Island. In the private class are included the increasing number of Long Island's north shore business men, who come by air instead of by boat and who wish to leave their machines at the base for the greater part of the day, and privately owned seaplanes from more distant points whose owners have Manhattan Island for their objective and who appreciate the opportunity to fly all the way instead of struggling in from a relatively distant airport.

Handling the big machines with efficiency and despatch was the first problem. For, in contemplating ten minute sight-seeing trips and six to eight minute shuttle services to Newark Airport or Floyd Bennett Field, it immediately became apparent that the conventional method of taxiing gently up to a float, making fast and turning about would never prove practical. The solution was found in an ingenious 80 by 45ft. barge, with a sloping turntable, built on the off-shore end and partially submerged in the water. A 10 h.p. electric motor is used to rotate it in either direction.

The largest seaplane may come up the slip, with ample control over wind or current, and run hard aground on its smooth-planked surface with the keels of its floats. The gentle slope has been shown to give comfortable decelerations, even at excessive taxiing speeds. When the pilot feels his keel ground, he holds half throttle with the stick well forward, and thirty seconds later his machine has been turned completely around on the turntable and, in the same operation, is raised some two feet out of the water.



The "Wall Street Sky Port" : How Private and Commercial Seaplanes are handled and "garaged" in the centre of New York : An Idea with Possibilities

New York and Suburban Airways have been operating at the base for a considerable period with a ten-passenger single-engined Bellanca Airbus on floats, and it is confidently felt that the elapsed time from landing to discharge of passengers was no more than would be found at the average airport. Of much greater interest, however, is the fact that the barge, in addition to serving as a loading ramp, gives direct access by means of comfortable gangways to an attractive waiting room, fitted with all the modern conveniences and built on the bulkhead, *exactly seventy-five feet from Wall Street!*

Provision is made on the barge for servicing with fuel and oil, and it is equipped with an electric winch and snatch blocks and cable for emergency use. Furthermore, variable bouyancy tanks, controlled by compressed air, are built in on the lower end so that the entire slope can be raised out of water in a few minutes should there be occasion to dry dock a machine completely.

Providing facilities for the small size private and commercial seaplanes proved infinitely simpler and cheaper. A floating catwalk was constructed on steel barrels—six feet wide and some four hundred feet in length—floating a foot above water. This is strung along the northerly side of the pier and is held off some twenty-five feet with a series of suitably braced booms which hinge to the pier so as to be free to swing up and down with the tide. The catwalk is fitted with mooring cleats and a padded outer edge, so that machines may safely lay alongside for as long as desired.

To Mayor LaGuardia and F. W. Zelcer, his Deputy Commissioner of Aviation, goes the credit for the final consummation of the oft-discussed plan. The original layout was conceived and drawn up by the Edo Aircraft Corporation, seaplane manufacturers, of College Point, in collaboration with engineers of United Dry Docks, Inc.

In the first two months of use, the "Wall Street Sky Port" has demonstrated its value in convincing fashion. Already a daily average of some fifty people have been using it in sight-seeing or business flights. It stands ready as a door mat to Manhattan Island for machines of the Army, Navy and Coastguard whenever emergency may require, and is already being used as a background for a number of flying services which are to inaugurate.

During November a sister ship of the Wall Street barge was placed in operation at Thirty-first Street and the East River, to serve the mid-town section. T.W.A. propose to move from Newark to Floyd Bennett field this year, and they may use a seaplane ferry service to transfer passengers quickly to the centre of the city.

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SEA DRAGONS

Good Performances for the D.H. "Dragon" and "Dragon Rapide" when Fitted with Floats

SEAPLANE variations of the D.H.84 ("Dragon") and the D.H.89 ("Dragon Rapide") are now being produced, primarily for the Canadian market. In general, the designs are identical with the landplane versions, and the floats are of robust all-metal construction with substantial nose bumpers and rubbing strips. Since the rear spreader tube has been eliminated there is a clear field for the use of a surveying or other camera mounted in the floor of the cabin. "Gipsy Majors" of 130 h.p. are, of course, used in the case of the "Dragon" seaplane and "Gipsy Sixes" of 200 h.p. in the case of the "Dragon Rapide" seaplane. The fabric covering is given special protection for water operation.

The specification and performance figures are as follows:

D.H. "DRAGON" SEAPLANE

Weight empty, but including cabin lining, starters, navigation and cabin lights, battery and generator	2,795 lb. (1,270 kg)
Crew	170 lb. (77.1 kg)
Fuel (60 gall.; 272.8 l)	434 lb. (196.86 kg)
Oil	45 lb. (20.4 kg)
Balance for cabin furniture and payload	1,056 lb. (480 kg)
[If only 30 gallons (136.4 l) of fuel are carried, payload and furniture can be increased to 1,275 lb. (580 kg)]	
Cruising speed at 2,050 r.p.m.	95 m.p.h. (152.9 km/h)
Take-off on glassy water and with no wind	30 sec.
Rate of climb, sea level to 1,000 ft. (305 m)	600 ft./min. (182.9 m/min)
Climb to 10,000 ft. (3,048 m)	26 min.
Fuel consumption at 95 m.p.h. (152.9 km/h)	12 gall./hr. (54.5 l/h)
Range in still air	475 miles (764 km)
Range with 30 gall. (136.4 l) fuel	237 miles (381 km/h)

Developments in the U.S.

Among the hundred-odd recommendations made by the Federal Aviation Commission in their report to Congress were two that are likely to have interesting results.

The first was that existing air mail rates should be revised and that all regular scheduled services should be available with payments fixed by the Post Office. The second was that preparation be made for regular airship and flying boat services across both the Atlantic and the Pacific.

Incidentally, Pan American Airways have been for some time running direct experimental mail services across the South Atlantic, using the special long-range Sikorsky S.42.

Deruluft's Tragedy

Since the company first started operations in 1921, Deruluft have sustained no serious accidents, and the tragedy which overtook their Königsberg-Berlin machine on January 31 only proves that even the best organisation and pilots cannot always succeed in the face of the worst weather conditions.

The cloud height at Tempelhof was a matter of a few hundred feet and the control, having other incoming machines to deal with, asked the commander, Westphal, a most experienced pilot, to return to Stettin. Flying in darkness and cloud the machine had almost reached Stettin when it crashed into a hill. The eight passengers and the crew of three were killed instantly.

A member of the staff of *Flight* was travelling in a Berlin-bound machine shortly before the accident. Between Hanover and Tempelhof, which was flown throughout in clouds, ice could be seen to be forming on the leading edges of the wings and flaps. There appears to be little doubt that the Deruluft machine, which had been flying under these conditions for a longer period, became overloaded with ice and could not be kept at a safe height. Wireless communication with the ill-fated machine was maintained until the last few minutes.



The first D.H. "Dragon" seaplane in Canada.

THE "DRAGON RAPIDE" SEAPLANE

Weight empty, but including cabin lining, starters, navigation and cabin lights, battery and generator	3,330 lb. (1,510.5 kg)
Crew	170 lb. (77.1 kg)
Fuel (80 gall.; 363.5 l)	576 lb. (261.3 kg)
Oil	68 lb. (30.84 kg)
Balance for cabin furniture and payload	1,056 lb. (480 kg)
[If only 40 gall. (181.7 l) of fuel are carried, payload and furniture can be increased to 1,344 lb. (614 kg)]	
Cruising speed at 2,050 r.p.m.	122 m.p.h. (196.3 km/h)
Take-off on glassy water and with no wind	28 sec.
Rate of climb	800 ft./min. (243.8 m/min)
Fuel consumption at cruising speed	19 gall./hr. (86.3 l/h)
Range with 80 gall. (363.5 l) fuel	510 miles (820.7 km)
Range with 40 gall. (181.7 l) fuel	255 miles (410 km)
Ceiling on one engine	5,000 ft. (1,523.9 m)

Slowly But Surely

There are now twenty-one licensed municipal aerodromes in this country, and seven other sites have been purchased.

The "Saigon" in Service

Flying on the Marseilles-Baleares Islands-Algiers line, the Breguet "Saigon" recently made its first regular flight. The route was covered in 3 hr. 45 min., against the scheduled time of 5 hr. 45 min.

A newer model, with supercharged engines which will give it a higher top speed, is now undergoing tests.

Incidentally, Air France carried 50,511 passengers, 1,347 tons of goods, and 220 tons of mail during 1934.

The New Radio Stations

Six new D/F wireless stations of the mobile type are to be put into operation this year for use by internal air lines. In addition, a few new permanent stations will be erected.

The first of these will be at Heston and designed to relieve the congestion at Croydon, while there is also to be a station in the Channel Islands.

Meanwhile, the new D/F station for radio telephony has been completed at Pulham, and that at Lympne will shortly be ready. New equipment is to be provided at Croydon for use while aircraft are being landed during "controlled zone" periods. The radio beacon at Croydon is being modified to operate on the aural principle so that normally equipped machines may make use of it. In due course, therefore, there will be seven direction-finders and transmitters and one beacon for use on the Continental airway. The new transmitter for weather broadcasts, to supersede that at Heston, will also be ready quite soon.

As a direct result of these developments applications can be entertained by the Air Ministry from ex-airman wireless operators, and these should be addressed to the Secretary.

Commercial Aviation**CROYDON*****Alternative Ports in the Fog : A French "Beau Geste" : Record Runs : Blowing the Airport Away : "Beacons" that Aren't***

LAST week opened in a fog which demonstrated the value of alternative airports. Imperial Airways made use of Lympe, to which port inward bound machines flew in the morning, returning to Paris with passengers at mid-day. K.L.M. landed at Gravesend for the disembarkation of inward passengers, bullion and freight, and one outward service to Holland was operated from there.

Redhill was also used as an emergency airport for Spartan Airlines, Ltd., whose inward and outward machines on the Isle of Wight service were thus enabled to operate. This made it possible for the 100 per cent. regularity of this company in 1935 to be maintained. Great credit is due to the authorities at these airports for the efficient way in which they handle visiting air liners on these occasions.

A curious development of air transport is that while air liners can take off along a white line or neon strip in fog so thick that the pilot can see no more than a few yards, ground transport from the City centre to the airport is often slowed down so as to delay departures.

French Soldiers' Helpfulness

Capt. "Bill" Ledlie, of Olley Air Service, Ltd., was bringing a little girl, aged 11, an invalid, by air from St. Moritz to England during a recent gale. Conditions made it desirable to land for the patient's sake, and a landing was made at Melun, France, where Army training was in progress. A mimic battle was delayed while troops held the machine steady on the ground. The Commanding Officer not only telephoned the local hotel to prepare a bedroom, etc., but arranged for an ambulance. When it came he caused two rows of soldiers, some kneeling, some standing, to form a sheltered lane with their overcoats spread wide, down which the invalid was carried to the car. It so happened that the troops were the 13th "Dragon" regiment, and regarded the descent among them of a "Dragon" with considerable enthusiasm. Little incidents of this sort are pleasant to record and make for international good feeling.

The well-known green coaches used by K.L.M. and supplied by United Services Transport are now being used by Air France also. Both these companies start from the same place in London, Horseferry House, the latest of the air line terminals in London. It is decorated in exactly similar style to the K.L.M. passenger departure station at The Hague.

Scylla, piloted by Capt. Armstrong, returned from the Iraq pipe line special charter job. It is said that the steward's front name is Lucullus, so high was the standard of catering in the desert.

Record trips were made last Friday, thanks to high winds. A D.L.H. machine flew from Croydon to Schipol (Amsterdam) in 67 minutes from tarmac to tarmac, or 62 minutes' flying time. The same day Capt. Oliver, of Railway Air Services,

Ltd., flew a D.H. 86 from Belfast via Liverpool (where a landing was made) to Croydon in under two hours. The distance is about 350 miles.

Talking of gales, a large commercial aeroplane makes quite a miniature gale. Experienced pilots, when about to take off, never turn their machines' tails to the doorway through which passengers reach the departure platform. Some younger pilots need a lesson in courtesy in this respect; a machine took off in this inconsiderate manner recently, covering with dust and small stones people who were seeing passengers off, blowing people almost off their feet, upsetting several tall pairs of steps, and causing a small trolley to run away and damage a car, as well as making a bicycle turn a somersault. There were ladies among the spectators, and there is no doubt that such affairs redound to the discredit of the companies concerned.

The Duke of Cavadonga is a democratic air traveller. Last week he arrived on a "no passport" week-end trip from Paris, by Imperial Airways. A French fellow-traveller who "had no English" was in difficulties over some dutiable articles, and the Duke acted as interpreter.

Recently, on the Empire service from Cape Town which arrives on Sundays, there were two travellers from Johannesburg with return tickets, and they designed to spend exactly one week in England!

The Boulton Paul Feeder

Apart, of course, from the very full description published in *Flight*, not much news is available about *Boadicea*, or, more correctly, perhaps, *Boudicea*, the new Boulton Paul P. 71 A, which has now been handed over to Imperial Airways, Ltd. It is understood that Mr. Horsey has flown the machine. Performance is quite up to expectations, I hear, and Flt. Lt. Feather and Mr. Sayers, of Boulton Paul, Ltd., have now left Croydon looking very pleased with themselves.

A Notice to Airmen states that a white line has been laid down at Heston, but does not say how long a run there is at the end of the line before the nearest obstacle is reached, which seems an important bit of information for pilots. The Croydon white line finishes at a point which gives a clear run of 450 yards.

An envelope of the first Liverpool to Isle of Man, Isle of Man to Liverpool air mail, flown by Blackpool and West Coast Air Lines, has just reached me.

There is a growing desire among air-line pilots here for a white flashing beacon instead of, or preferably as well as, the red neon beacon. The point is that so much "neon" is used commercially in the neighbourhood that pilots flying in fog may be lured away by a blaze of red light which turns out to be an advertisement for meat extract or malt liquor!

A. VIATOR.

New Zealand Air Mail

The Postmaster-General of New Zealand, Mr. A. Hamilton, and the Director-General of the P.O., Mr. McNamara, are to meet the British delegates in New Zealand to discuss schemes for the extension of the Australian mail service to New Zealand.

The Isle of Man Mail

Last Friday the mails were carried to the Isle of Man by Blackpool and West Coast Air Services, Ltd.

There was a moderate Westerly gale blowing when the first "Dragon" left Liverpool at 8 a.m., piloted by Mr. Higgins and carrying 554 lb. of mail, 270 lb. of freight, two passengers, and Mr. Higgins' small son.

At the same time Mr. Armstrong left Ronaldsway with another "Dragon." On arrival at Speke he was received by the Lord Mayor of Liverpool, who took the first mail bag and presented Mr. Armstrong with the mail pennant. Mr. H. L. Cowin, a member of the House of Keys, and Mr. Gordon Olley then spoke.

On arrival in the Island, Mr. Higgins was met by Mr. O'Shea, the Manx Postmaster, and also presented with the pennant.

This service materially improves postal communications to and from the Isle of Man. For example, letters can be posted

in London at midnight in the central areas and between 10 p.m. and 11 p.m. in other areas, for delivery in Douglas on the following day at 10.30 a.m.—as compared with 4.30 p.m. delivery previously obtained. In the reverse direction, letters posted overnight in the towns of the Island leave at 8 a.m., and delivery is effected in Liverpool at 10.30 a.m., in Manchester at 1.15 p.m., in the London Central Areas at 3.30 p.m. or 4 p.m., and in many towns over a wide area by the afternoon delivery.

With the mail contract Blackpool and West Coast Air Services, Ltd., have started their spring time-table, which will be in force until May 5, when the company will probably announce further extensions. During this period two services will be run on each week-day and one on Sunday. The traffic headquarters, incidentally, are now at Speke (Garston 64).

A Midland Charter Firm

For some time a charter firm, Midland Airways, Ltd., have been operating from Sywell aerodrome, Northampton, using a D.H. "Fox Moth" and the King's Cup "Hawk Major" which is owned by Capt. Shaw, the chairman of the company. Mr. C. R. S. Hayne is manager and chief pilot. The rates are 1s. per mile for the "Hawk" and 6d. per mile per passenger for the "Fox Moth."

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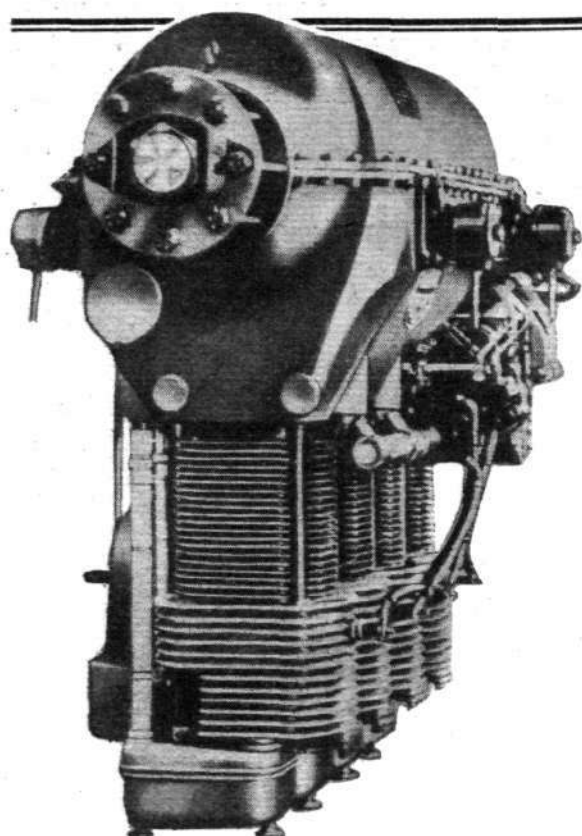
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STILL FASTER. A development of the S.73, illustrated in *Flight* of December 20 last year, this new Savoia-Marchetti S.79, with retractable undercarriage, is reputed to cruise at 217 m.p.h. at 13,000 ft. The engines are Piaggio "Stella IX R.C." of 610 h.p. and the normal load is 6,614 lb. Three S.73s, it will be remembered, have been delivered to S.A.B.E.N.A.

At Heston

Although a number of Continental air services using larger machines were cancelled owing to the stormy weather experienced during the week-end before last, Jersey Airways operated as usual, though they were naturally delayed by the strong head winds on the Jersey to Heston flight. Mrs. Victor Bruce returned to Heston by Jersey Airways after a lecturing tour.

On January 24 Airwork had the first call on the temporary aircraft distress organisation in force at Manchester Airport. A telephone message notified the airport manager that a Hillman aircraft bound for Liverpool from Belfast was overdue at Speke. Airwork at Manchester at once notified all coast-guard stations on the Belfast-Liverpool route and also instructed the Seaforth radio station to broadcast a warning to all shipping in the vicinity to keep a look-out for the aeroplane. After an hour's anxious waiting the pilot of the machine telephoned through from Douglas, Isle of Man, where he had landed safely to avoid unfavourable weather.

The mechanical excavator—a prehistoric saurian with long neck and snapping jaws—is now transferring quantities of Heston earth to a waiting lorry, on the site of the new service and office hangar. Being fascinated by the process, some

Hestonites who watched awhile learned from the foreman that half a cubic yard of earth is shifted in a mouthful. Working an eight-hour day it could handle 3,000 cubic yards in a week. Having disgorged the earth into the lorry, its head slides down its neck with the jaw hanging horribly open. Half-way it hits something and the jerk shuts its mouth with a click. The operation then recommences. Some of Airwork's staff are taking "dual" on it for fun. Earphones would be a help, for the noise is deafening.

Faster by Air!

Interesting possibilities can be envisaged from the fact that Col. Warwick Wright, flying from New York to London by devious special mail and passenger routes, arrived before a friend who had crossed direct by liner.

He flew by Eastern Air Lines to New Orleans in a "sleeper Condor" and thence to Miami, where he boarded a Pan American "Clipper" bound for South America. Thence he flew with the mails to Dakar, Casablanca, Marseilles and Paris, and to London by Imperial Airways.

The 7,000-mile journey was made in a little over six days, and he arrived a few hours before the liner passengers.

THE INDUSTRY

THE PULLEN TURN INDICATOR

The marketing rights of the Pullen electrically driven turn indicator have been acquired by the Williamson Manufacturing Co., Ltd. The first batch should be available shortly.

WIRELESS FOR NEW "IMPERIAL" MACHINES

The group of five D.H.86 aircraft now on order for the extended Continental services of Imperial Airways, Ltd., are being fitted with the new Marconi medium-wave transmitting and receiving set, type A.D.41/42, and the Marconi "Homing" device.

DEVELOPMENTS AT READING

The demand for aircraft turned out by Phillips and Powis, of Reading, has been so great that large extensions to the factory have been necessitated.

A visitor to the aerodrome now finds building operations going on. On the north-east front of the existing buildings there is a large extension to the factory space being put up by Boulton Paul, Ltd., which will give an additional floor space of 24,750 sq. ft.

The building housing the aeronautical school, drawing office and experimental workshop is now practically finished, and in it is to be seen the latest Miles "Falcon" receiving finishing touches. The space in the old buildings which has hitherto been used by the repair department is now being taken into the construction shop, and the repair section has been moved to the "service" hangars on the north-east corner of the aerodrome. These hangars are also having 90 ft. added to them.

All this work is scheduled to be completed by the middle of March, when even the complete new heating and electrical installation will be ready, and the factory will then be capable of employing 600 to 700 workmen and have an output of six machines a week.

GENERAL AIRCRAFT MOVE

General Aircraft, Ltd., have now removed their entire establishment from Croydon to the London Air Park, Feltham, and henceforth all enquiries should be addressed there.

AIRCRAFT STEELS

Brown Bros., Ltd., of Great Eastern Street, London, E.C.2, have just issued an Aircraft Steel folder, especially valuable for quick reference to the various specifications and published in convenient form for hanging in any designing or works manager's office. They will be pleased to forward a copy to anyone who may be interested.

A CHANGE-OVER

Having been chief buyer for Handley-Page, Ltd., for many years, Mr. C. S. Blackburn has now resigned to take up the position as purchase manager with Airspeed (1934), Ltd. Mr. Blackburn states that, as in the past, he will be pleased to give his business friends any helpful information or advice with regard to aircraft material and supplies, in so far as this has no direct relationship with any actual secret or confidential work upon which he may be engaged.

STELLITE

"Stellite" is the term applied to a group of alloys which possesses unusual and remarkable properties. In chemical composition these alloys consist of cobalt, chromium and tungsten carbides. "Stellite" is produced in several grades, each intended for a different purpose—the main use for this material being for cutting tools, drills, etc. It can also be used for valves and valve seats for internal-combustion engines. Full details regarding "Stellite" are given in a booklet just issued by the Deloro Smelting and Refining Co., Ltd. (of Canada), the manufacturers, copies of which may be obtained from their head office, 21, Hubert Street, Aston, Birmingham, or the London office, 14, Waterloo Place, S.W.1.

AIR POST STAMPS

By DOUGLAS B. ARMSTRONG

(Editor of "Stamp Collecting," etc.)

Air Stamps in 1934

AN indication of the growth of the air mail service throughout the world in the year 1934 may be found in the fact that one new stamp in every twenty issued during that period was expressly created for air post purposes. According to Continental statistics the grand total of air mail stamps for the year just ended reached 293. A proportion of these were of a commemorative or otherwise ephemeral character, but the majority were dictated by actual needs of the air mail services concerned. Europe came first with a total output of ninety-three, closely followed by America with eighty-two new air stamps, and the cry is "Still they come."

Air Post Anniversaries

Two notable anniversaries in the history of the air post fall due this year. Four-and-twenty years ago, on February 18, 1911, the first official experiment in the transmission of mails by aeroplane was carried out at Allahabad (India) under the direction of Captain Windham (now Commander Sir Walter Windham). About six thousand missives were carried a distance of five miles by the French aviator Piquet, but, strangely enough, despite their historical importance, they have never been very popular with collectors, so that even to-day cards showing the special cachet employed for the occasion may be picked up for a few shillings each.

On the other hand, there is a growing interest in the cards and envelopes associated with the first United Kingdom aerial post conducted experimentally with the sanction of H.M. Postmaster-General between Hendon and Windsor from September 9 to 16, 1911, the market values of which range from 10s. to £5, according to colours and dates of use.

By the way, the organiser of these early air post trials, Sir Walter Windham, has joined the newly formed Air Mail Society, and proposes to take an active part in its work.

Latest Novelties

A striking addition to the world's air post stamps hails from Mexico in a set of eight values, ranging from 5 centavos to 5 pesos, handsomely reproduced in characteristic designs by the State Printing Office, Mexico City, as part of a new general



Three picturesque air stamps from a new series just issued in Mexico.

issue of adhesive stamps for all purposes. The subjects of the vignettes include an Aztec mask emblematic of speed, an aeroplane over the Temple of Teotihuacan, an Indian with an eagle in leash, the spirit of flight, examples of native art, an aviator and planes in flight, and a woman and child watching the passing of an aeroplane overhead.

Additional denominations of 2½d. green and 3½d. carmine which have lately been incorporated in the contemporary postage stamp series of the Territory of New Guinea have been adapted also to air post purposes by overprinting them with an aeroplane device in conjunction with the words "AIR MAIL," as in the case of the other values up to and including £1.

Following the creation of an emergency 10 cents air mail stamp in the Dutch West Indian island of Curaçao a few months ago, a permanent stamp of that denomination has now been added to the existing set bearing the uniform design of a Mercury head.

The 3 dinars air mail stamp of Jugo-Slavia printed in blue with a picture of an aeroplane flying over the historic church of Oplenac is the first to appear with a mourning border in memory of the late King Alexander.

Forthcoming Issues

A new series of Greek air post stamps is in course of preparation and will shortly replace that now in circulation. It embraces nine stamps in four different designs, their face values ranging from 1 to 100 drachmae.

The recently constituted Empire of Manchukuo is about to



Cover (incorrectly addressed but safely received!) carried by the K.L.M. airliner, *Snip*, from Amsterdam to Curaçao, Dutch West Indies. The *Snip* left Amsterdam on December 15 last, and reached Curaçao on January 22.

join the ranks of the air stamp issuing countries of the world with a set of postage stamps overprinted with an aeroplane and surcharged with new values in syllabic characters.

A complete new series of air mail stamps is announced to make its début in Uruguay at an early date.

NEW COMPANIES

W. S. SHACKLETON LTD. (Piccadilly, London, W.1.) Capital £1,500 in £1 shares. Objects: To acquire the business of aeronautical engineers and merchants carried on by Wm. S. Shackleton and John H. C. Beard. The first directors are:—Wm. S. Shackleton, The Willows, Bisley, Surrey, (director of Forward View Aeroplanes, Ltd.); John H. C. Beard, Linton, Ferndown, Dorset. Secretary: J. H. C. Beard. Solicitors: Thompson Quarrell and Co., 9, Clements Lane, E.C.4.

DEVANEY PATENTS LTD. Capital £600 in 5/- shares. Objects: To carry on the business of builders of aeroplane and other internal combustion engines, mechanical, civil and electrical engineers, etc.; and to acquire all the rights and interests of, and in, certain inventions and experimental work owned and carried out by Gerald P. Devaney. The directors are:—Gerald P. Devaney, "Kerri," The Park, Great Bookham, Surrey, internal combustion engineer; Arthur H. Street, 63, North Gate, Regent's Park, N.W.8, civil engineer.

INCREASES OF CAPITAL

AIRSPED (1934) LTD. (Aircraft Manufacturers, etc. The Airport, Portsmouth). The nominal capital has been increased by the addition of £180,000 beyond the registered capital of £220,000. The additional capital is divided into 720,000 preferred ordinary shares of 5/- each.

P. B. DEVIATOR LTD. (Aeronautical experts, etc. 19a, Coleman Street, E.C.1.) The nominal capital has been increased by the addition of £10,000 in £1 ordinary shares beyond the registered capital of £10,000.

PUBLICATIONS RECEIVED

Martineau's Airway Time Table. No. 9. February, 1935. Price 3d. London: R. N. Martineau, Polebrook House, Golden Square, W.1.
Catalogue of Standard Parts. Rotherham & Sons, Ltd. Coventry.
The Journal of the Royal Air Force College, Cranwell, Lincolnshire. Vol. XV. No. 1. Spring, 1935.
Catalogue. Stellite: A Unique High-Speed Cutting and Hard-Facing Alloy. Deloro Smelting and Refining Co. Ltd., 21, Hubert Street, Aston, Birmingham.
Ventures and Visions. By G. G. Jones. Price 18/- net. London: Hutchinson & Co.

AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motors. (The numbers in parentheses are those under which the specification will be printed and abridged, etc.)

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APPLIED FOR IN 1933

10197. BENDIX AVIATION CORPORATION. Indicating-instruments, such as altimeters. (422,265.)
10545. NYSTROM, S. Convertible aeroplane and motor road vehicle. (422,188.)
20103. LA CIERVA, J. DE. Rotor blades for aircraft with auto-rotative sustaining rotors. (422,212.)
20784. BEMBERG, O. E. Automatic aerodynamic stabiliser for aircraft. (422,493.)

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11090. LACHASSE, L. M. Radiators for internal-combustion engines applicable to aircraft. (422,447.)

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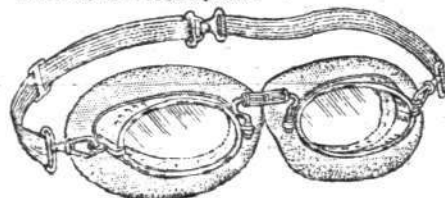
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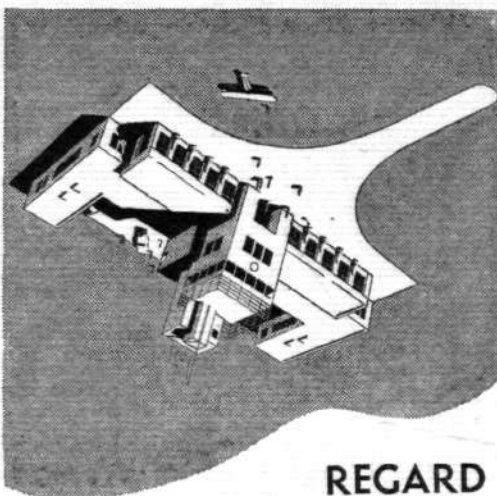
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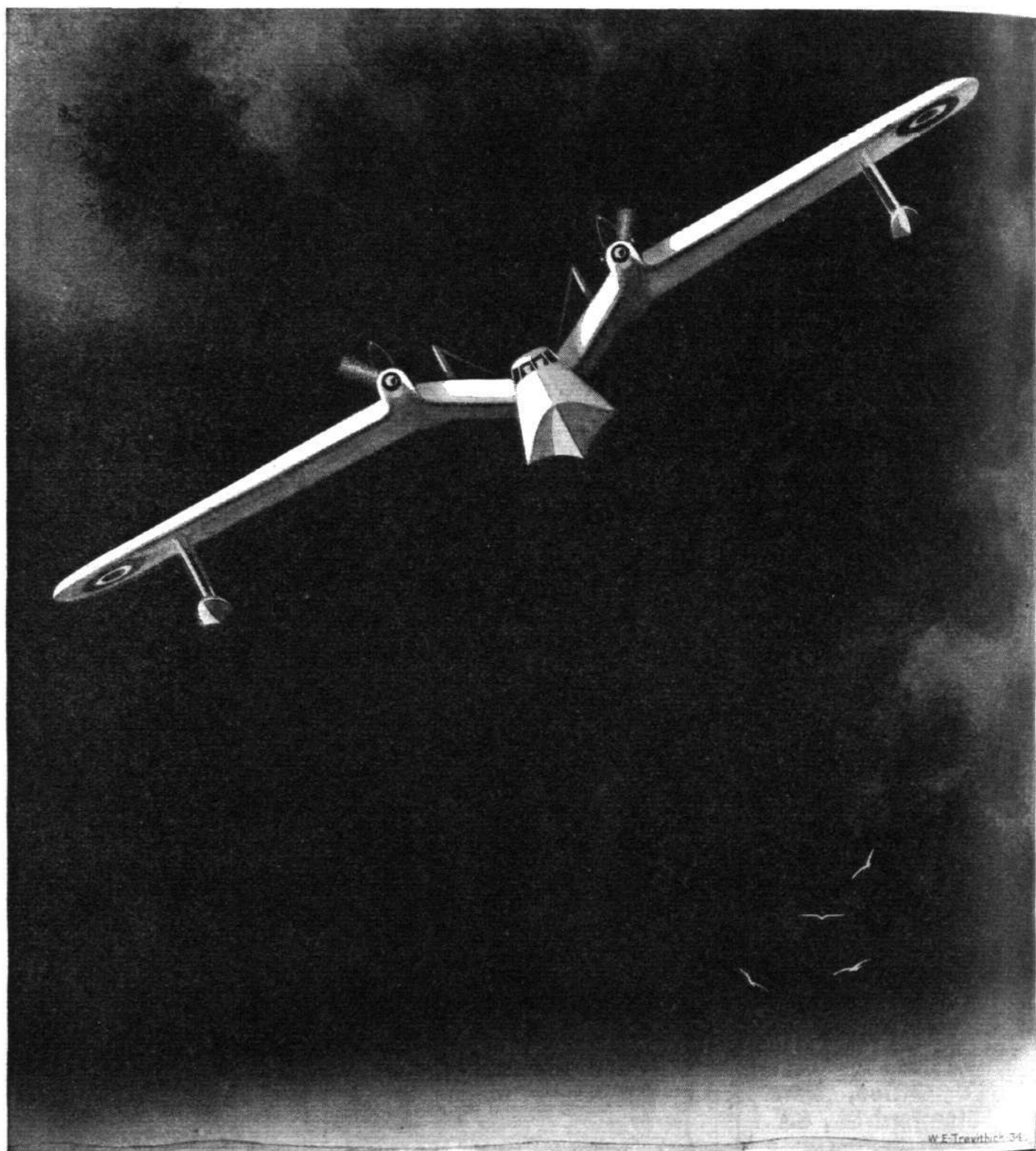
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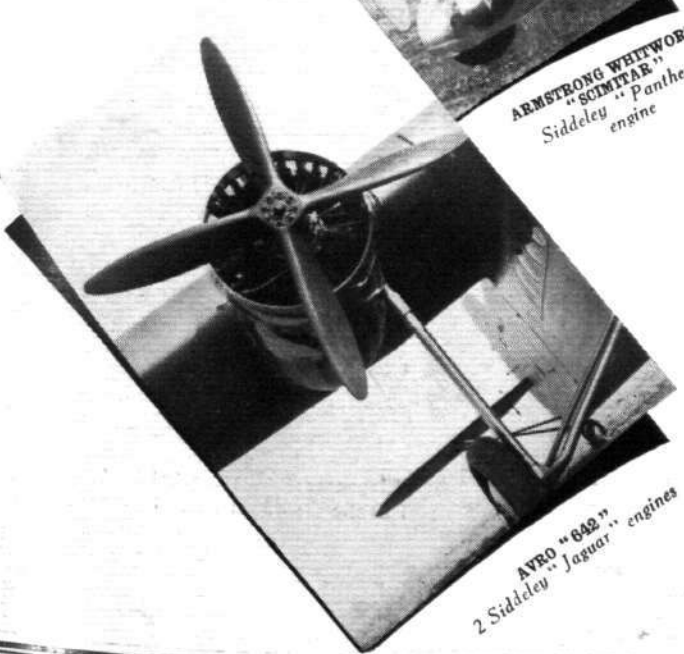
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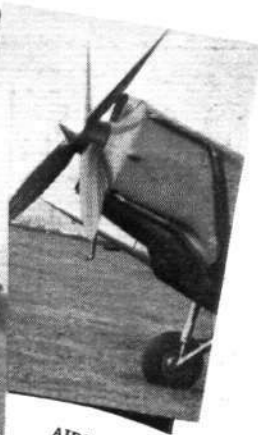
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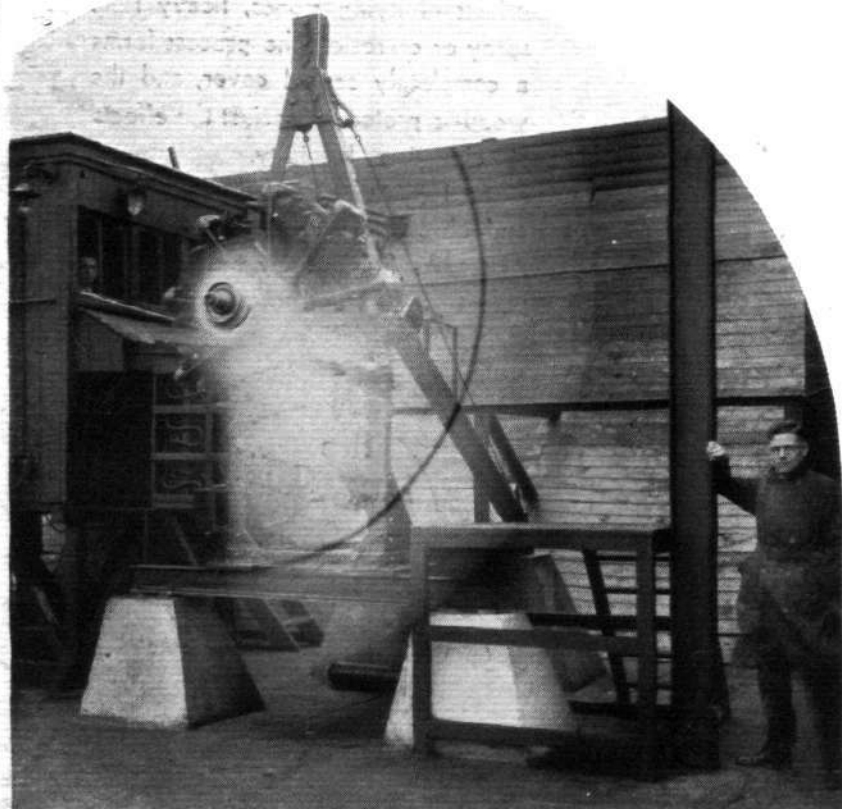
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